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VOLUME XXXVII 1960 - 1961 Number Five JUNE 1961

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The BULLETIN of the National Institute for Architectural Education invites submission of manuscripts, news items and notes from students and professionals. The reports of the competitions are presented in the BULLETIN as unofficial opinions of the authors and should not be interpreted as the collective opinion of the evaluating jury. Moreover, the N I A E cannot be held to account for any statements or opinions printed in magazine.

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SPRING TERM 1960-1961

ELEMENTARY PROBLEM

A SCULPTURAL CLIMBER FOR A CHILDREN'S ZOO

OSWALD HOEPFNER MEMORIAL PRIZE

JURY OF AWARD - May 23, 1961

George Beiers
John J. Carlos
H. Dickson McKenna
Alexander Kouzmanoff
Patrick Raspante
Maurice R. Salo
Richard B. Snow

PARTICIPANTS - 78 entries

Oklahoma State University
Princeton University
University of Illinois, Urbana
University of Illinois, Chicago
University of Notre Dame

AWARDS

Honorable Mention Placed 1st and Prize -
R. Lawless, University of Notre Dame
Placed 2nd - G. W. Bloome, University of Illinois
Placed 3rd - D. B. Rowe, University of Illinois
Placed 4th - S. M. Wittmer, Oklahoma State University
Placed 5th - M. I. Herman, University of Illinois

Honorable Mention - B. Harrington, Univ. of Illinois

REPRODUCTIONS

24 R. Lawless, Univ. of Notre Dame - Prize
25 G. W. Bloome, University of Illinois
26 B. D. Rowe, University of Illinois
27 S. M. Wittmer, Oklahoma State University
28 M. I. Herman, University of Illinois

REPORT OF THE JURY
BY RICHARD B. SNOW

The approaches to solving this pleasant little problem ranged from the crystalline to the amorphous, from extreme naturalism to a degree of abstraction denying any relationship with living things. The sketches which most attracted the jury lay well within these extremes.

The prize winning drawing by Bob Lawless of the University of Notre Dame, is a fine composition, somewhat naturalistic if we remember how strong in nature are stratifications and rocky planes. The structure, obviously designed for climbing, is subtly composed. Its first impression is random -carefree, but study reveals a characteristic which it shares with most significant works of art: a focus. The varied planes rise to a visually arresting high point, and this controlled order removes it from the realm of scenery to the realm of sculpture. A crisp black and white drawing and a readable plan helped tell the story.

G. W. Bloome, University of Illinois, placed second with a beautiful ink drawing of a soft, sculptural structure, akin to eroded or submarine forms, less craggy, less inviting to climbing goats than the prize winner, but practical enough, for all that.

The third place went to B. D. Rowe, University of Illinois, for a design which is a first cousin to the prize winner; crisp surfaces, very expressively and attractively rendered. It was not at the head of the line simply because it was not quite the authoritative organization and focus of #1.

The drawing placed fourth by S. M. Wittmer, Oklahoma State University, caught the attention of the jury from the start. An alternation of stalagmite forms with broad planes, very complex but beautifully studied and presented, it is effective visually, but rather restless and a little forbidding.

Fifth place was won by M. I. Herman, University of Illinois, with a composition of extreme plasticity, verging on monotony, but beautifully rendered.

An Honorable Mention went to B. Harrington, University of Illinois, for a fine composition which shows up extremely well in photographs of a model. The delineation is rather weak, needless to say a fatal defect in a sketch problem of this sort, but the strong idea could not be disregarded.

The jury was not attracted to solutions which attempted elaborate architectural structures or complex visitor circulation not asked for by the program. There were also numerous drawings which in scale suggested a view across Indian Valley toward distant mountains rather than a climber for baby goats in a 100 foot diameter circle. Try pacing off 100 feet outdoors sometime, and see.

INTERMEDIATE PROBLEM

A CONCEPTORIUM FOR THE ALLIED ARTS

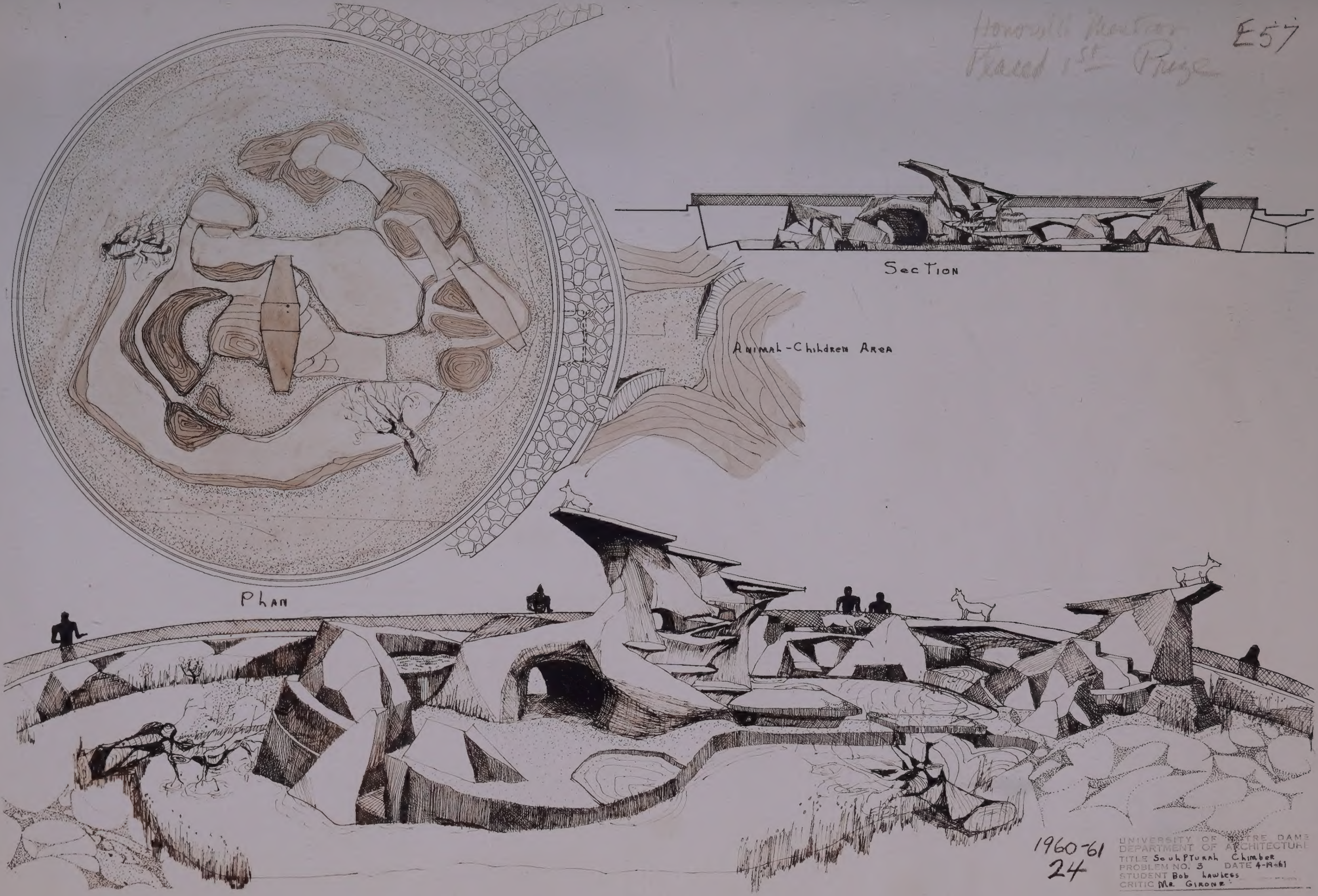
HIRONS ALUMNI PRIZE

JURY OF AWARD - May 23, 1961

Allen R. Congdon
William F. Ellis
Seymour R. Joseph
Joseph Judge
Gerhard Kallmann
Sidney L. Katz
Geo. Fred Poehler
Robert K. Posey
John Stonehill

Honorable Mention
Placed 1st Prize

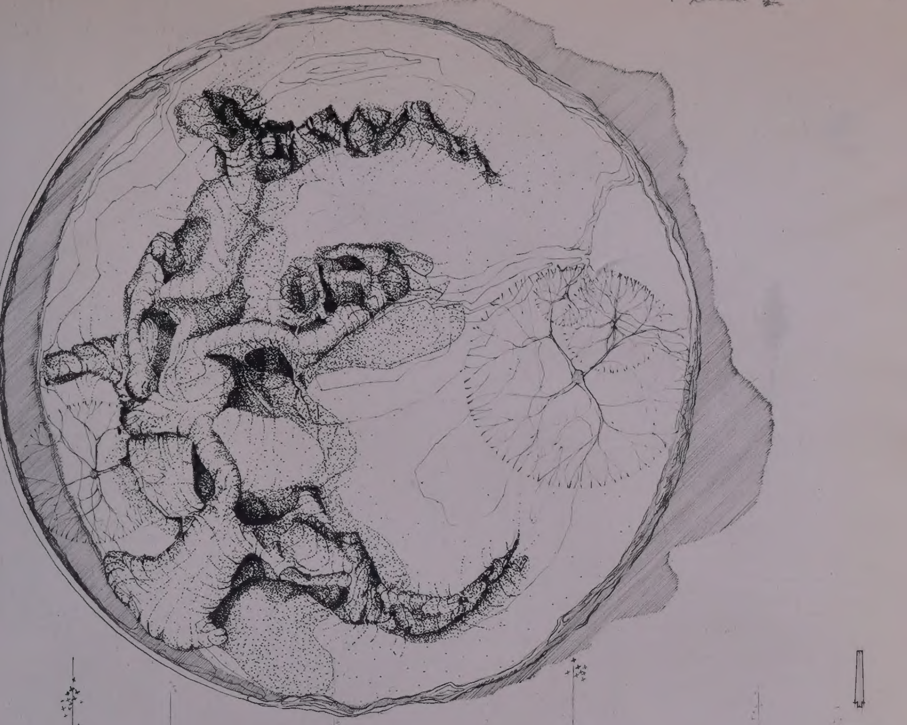
E57



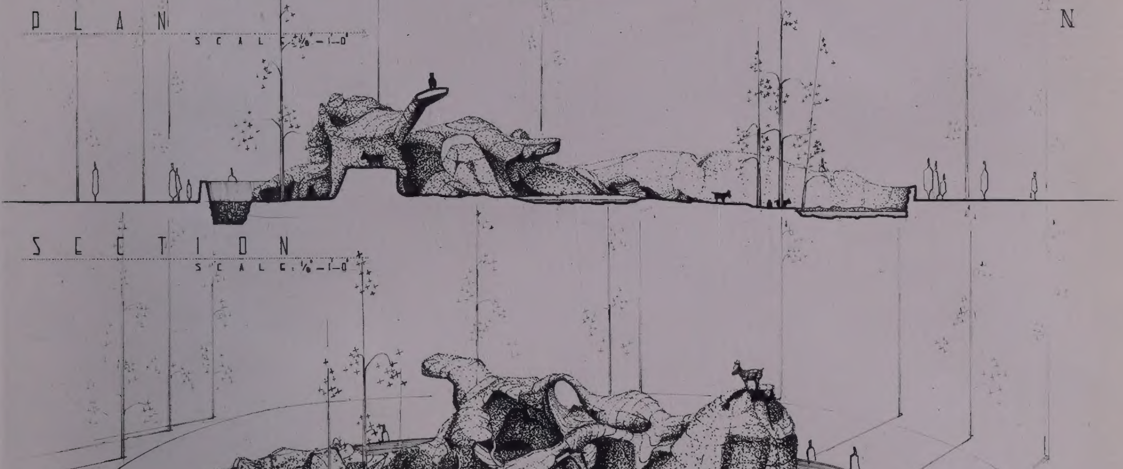
1960-61
24

UNIVERSITY OF NOTRE DAME
DEPARTMENT OF ARCHITECTURE
TITLE Sculptural Chamber
PROBLEM NO. 3 DATE 4-19-61
STUDENT Bob Lawless
CRITIC Mr. Girone

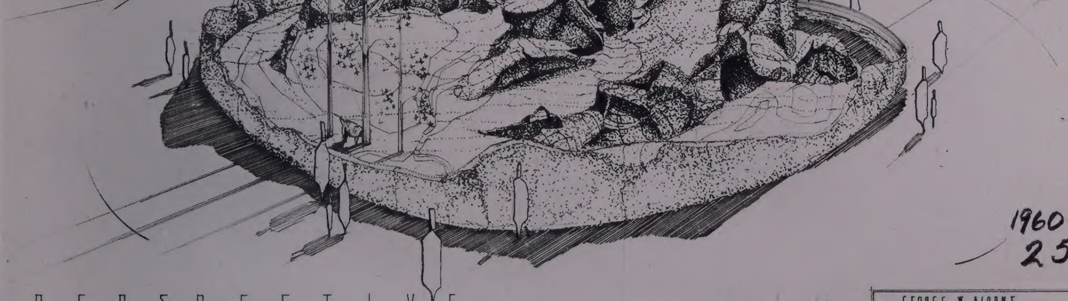
Honorable Mention
Placed 2nd E67



PLAN SCALE: 1/8–1–0



SECTION SCALE: 1/8–1–0



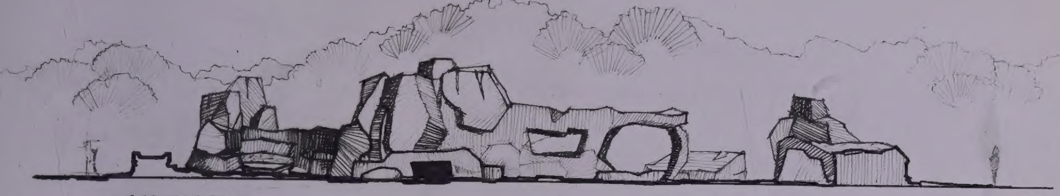
PERSPECTIVE

A SCULPTURAL CLIMBER

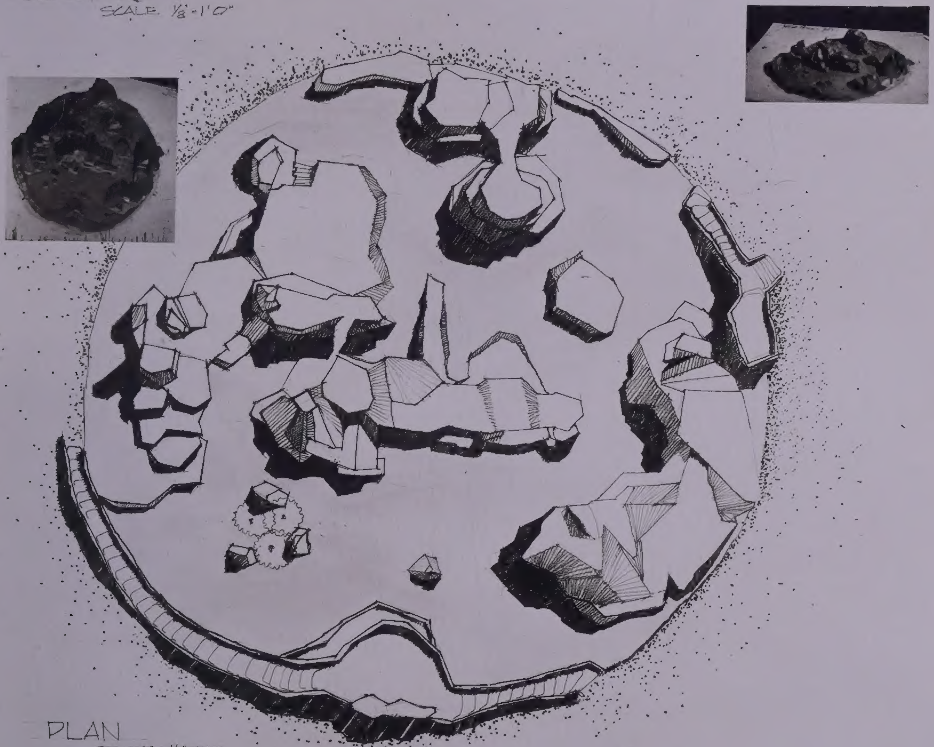
1960-61
25

GEORGE W ALDONE
RR#2 CARLINVILLE, ILL.
UNIVERSITY OF ILLINOIS
ATELIER MR. E. DEAN
JUNIOR II
NIAE [illegible] MEMORIAL PRIZE

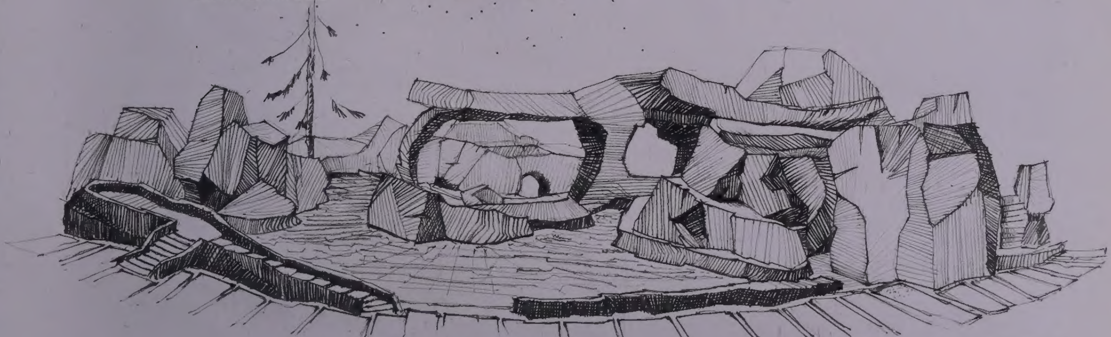
Honorable Mention E68
Placed 3rd



SECTION
SCALE 1/8"-1'0"



PLAN
SCALE 1/8"=1'0"

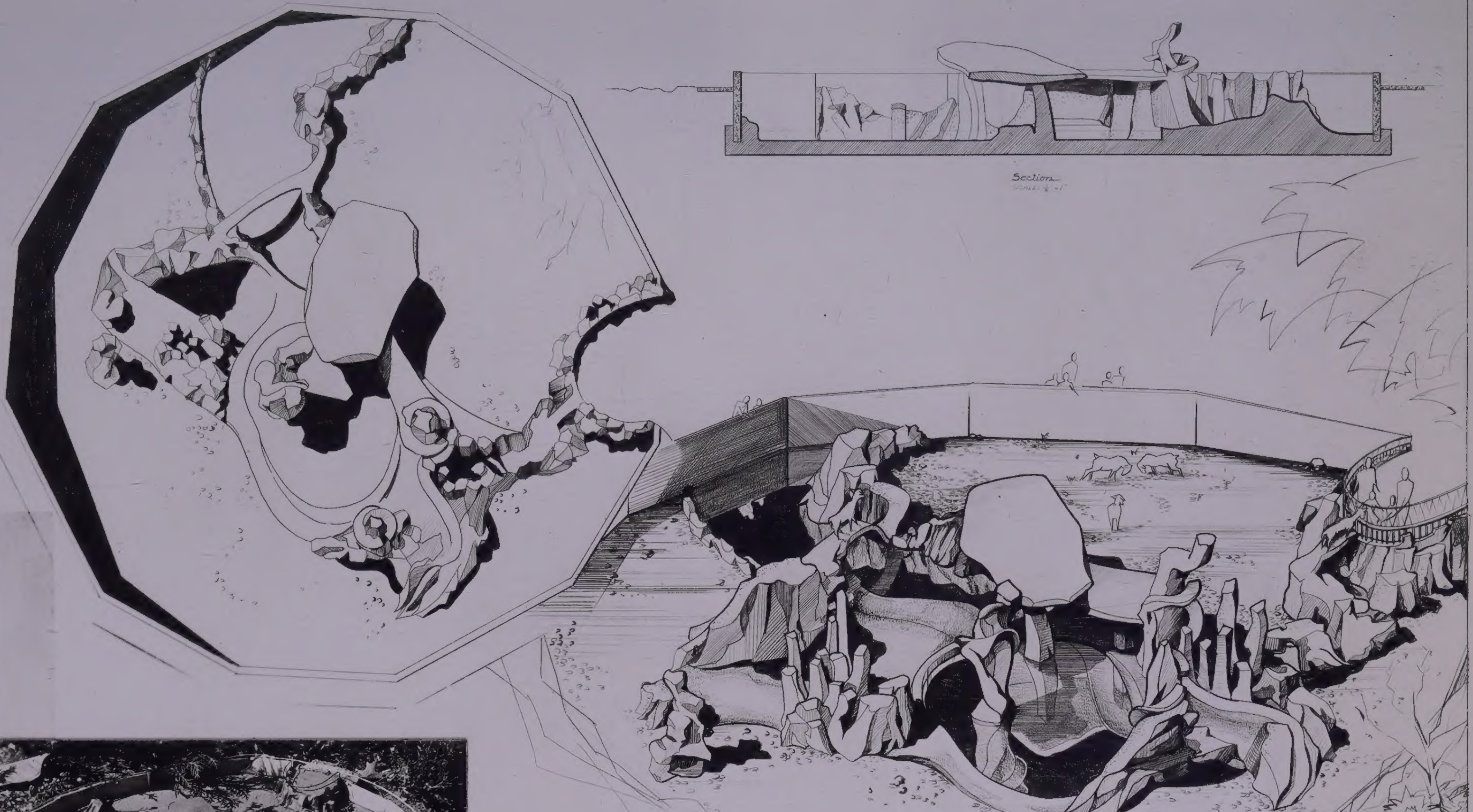


a sculptural climber - children's zoo

1960-61
26

ROWE, B. D
RR2 ANGOLA, IND
UNIVERSITY OF ILLINOIS
ALETIER - DEAM
ELEMENTARY
OSWALD HOEPFNER
MEMORIAL PRIZE

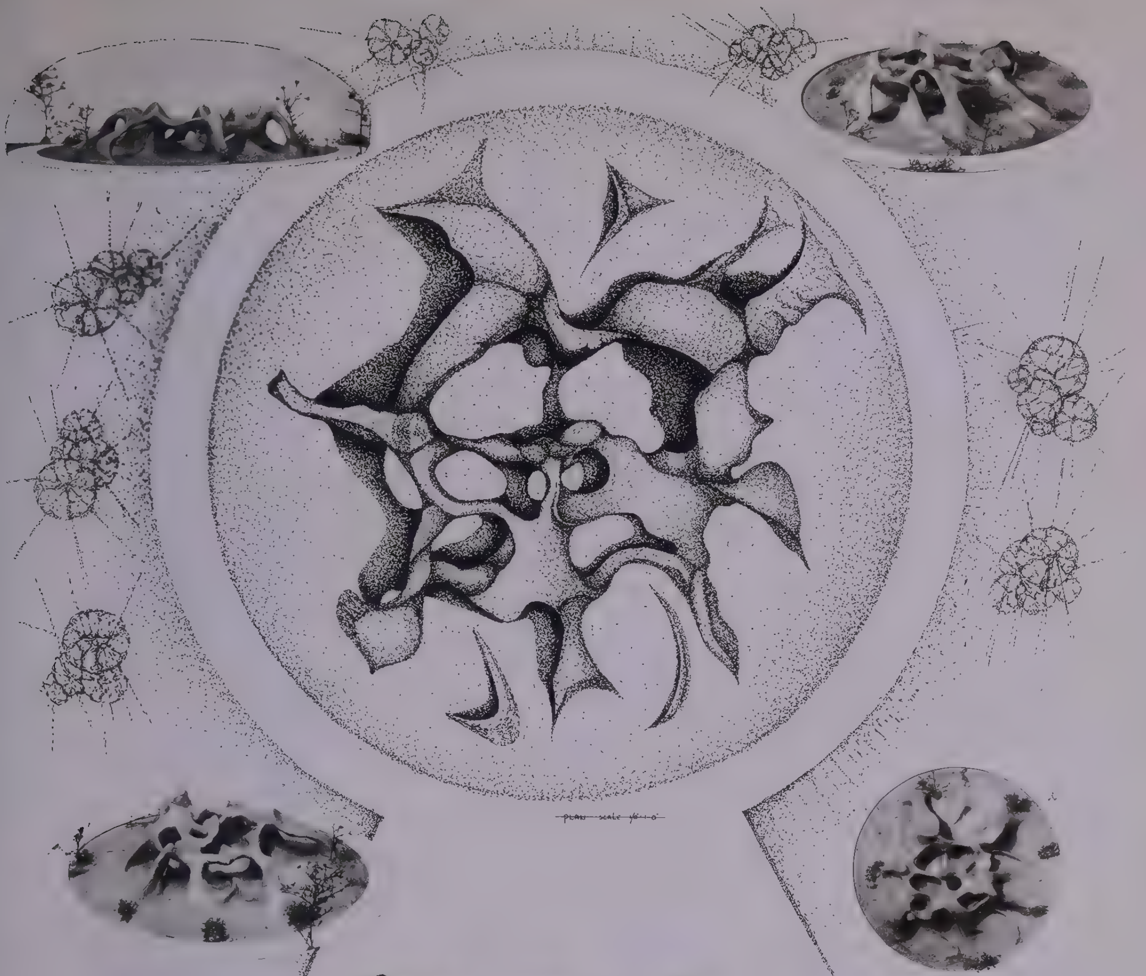
Honorable Mention E 43
Placed 4th

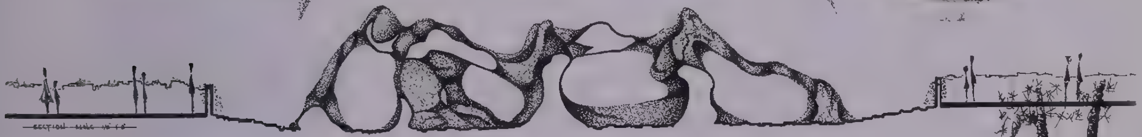


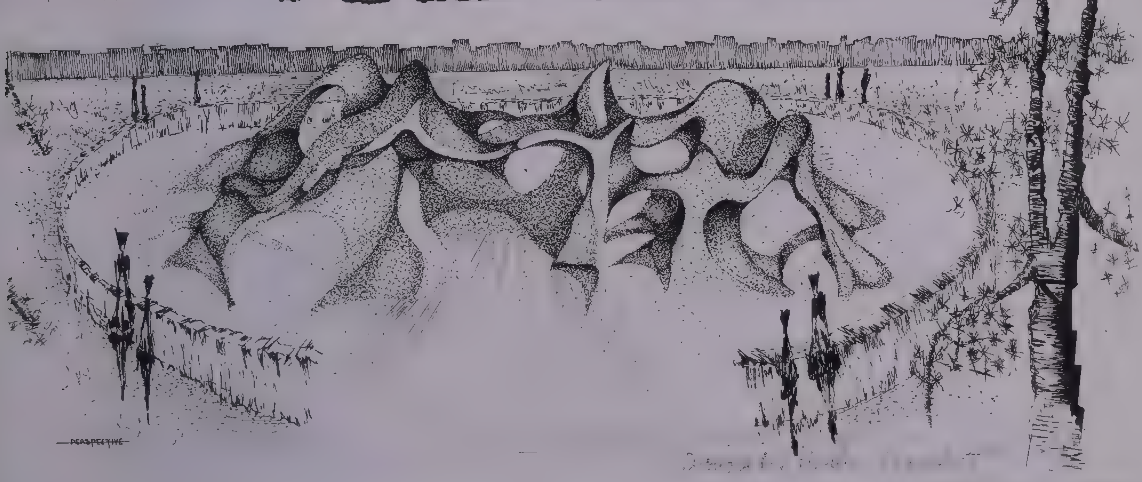
Section
Scale 1/8" = 1'

1960-61
27

- A Sculptural Climber for a Children's Zoo
Oswald Hoepfer Memorial Prize N.I.A.E.
- Sammy Wittmer Arch 245 Class C
- Route 2, Ponca City, Oklahoma
- Oklahoma State University
- Stillwater, Oklahoma Spring '61





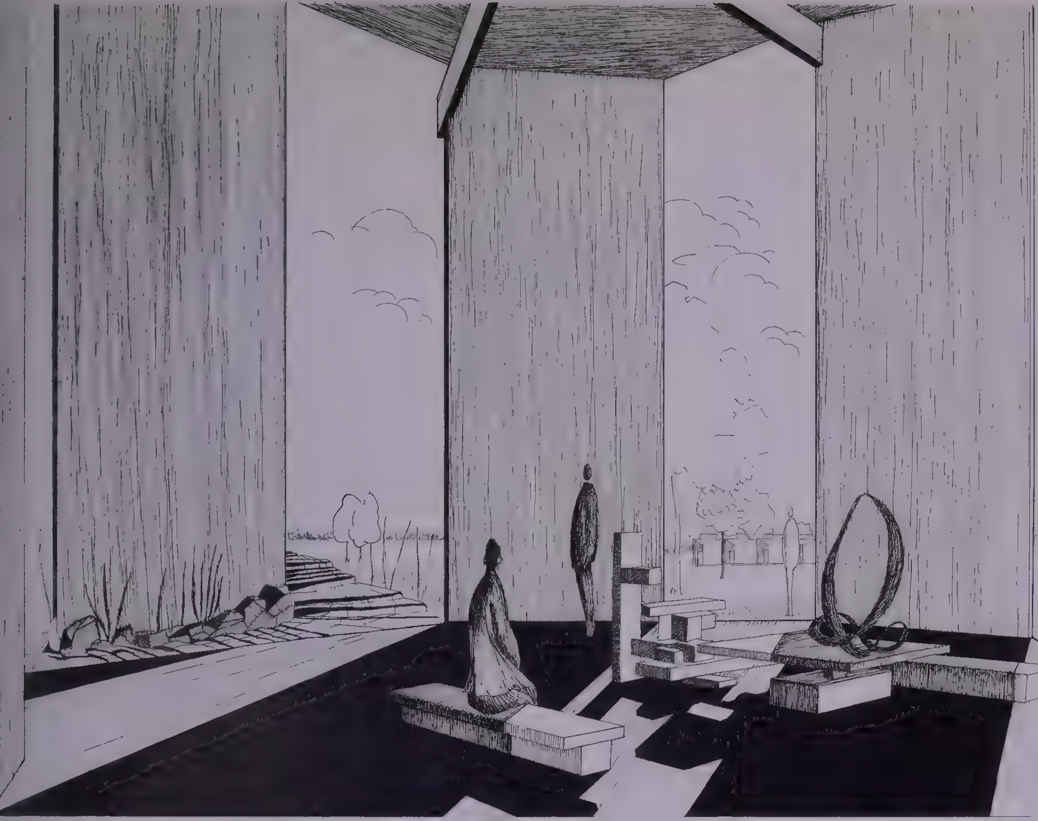


a sculptural climber for a zoo

1960-61
28

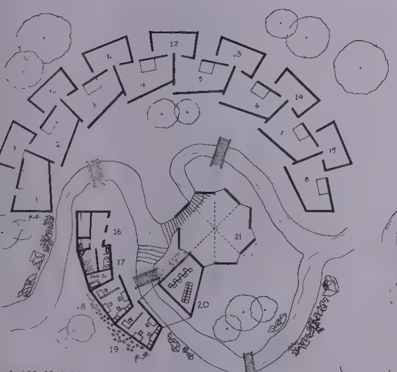
MARVIN IRA[illegible] HERMAN 503 E. [illegible] ST.
UNIVERSITY of ILLINOIS; URBANA, ILL.
ELEMENTARY SPRING TERM PROBLEM 1960-61
OSWALD HOSPFNER MEMORIAL PRIZE

I-20
(2)

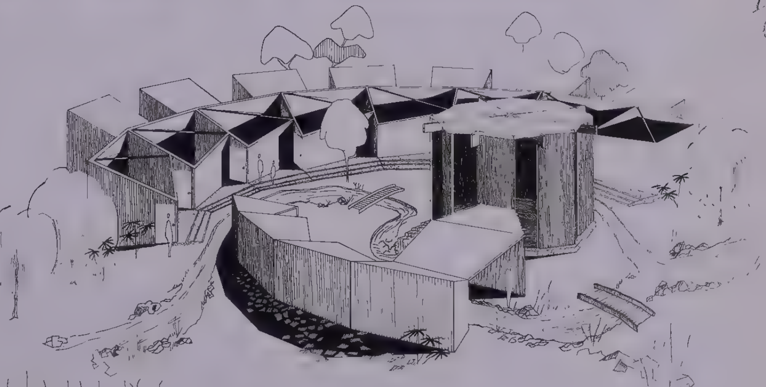


1960-61
29

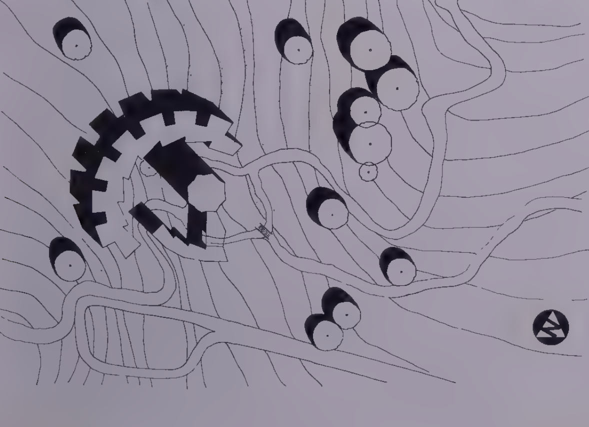
I-10
(2)



1-4 ART STUDIOS
3-5 DISCUSSION
6 ENT HALL
17 MEN & LADIES RM
18,19 OFFICES
20 MEDITATION RM
21 CONCEPTORIUM



PERSPECTIVE

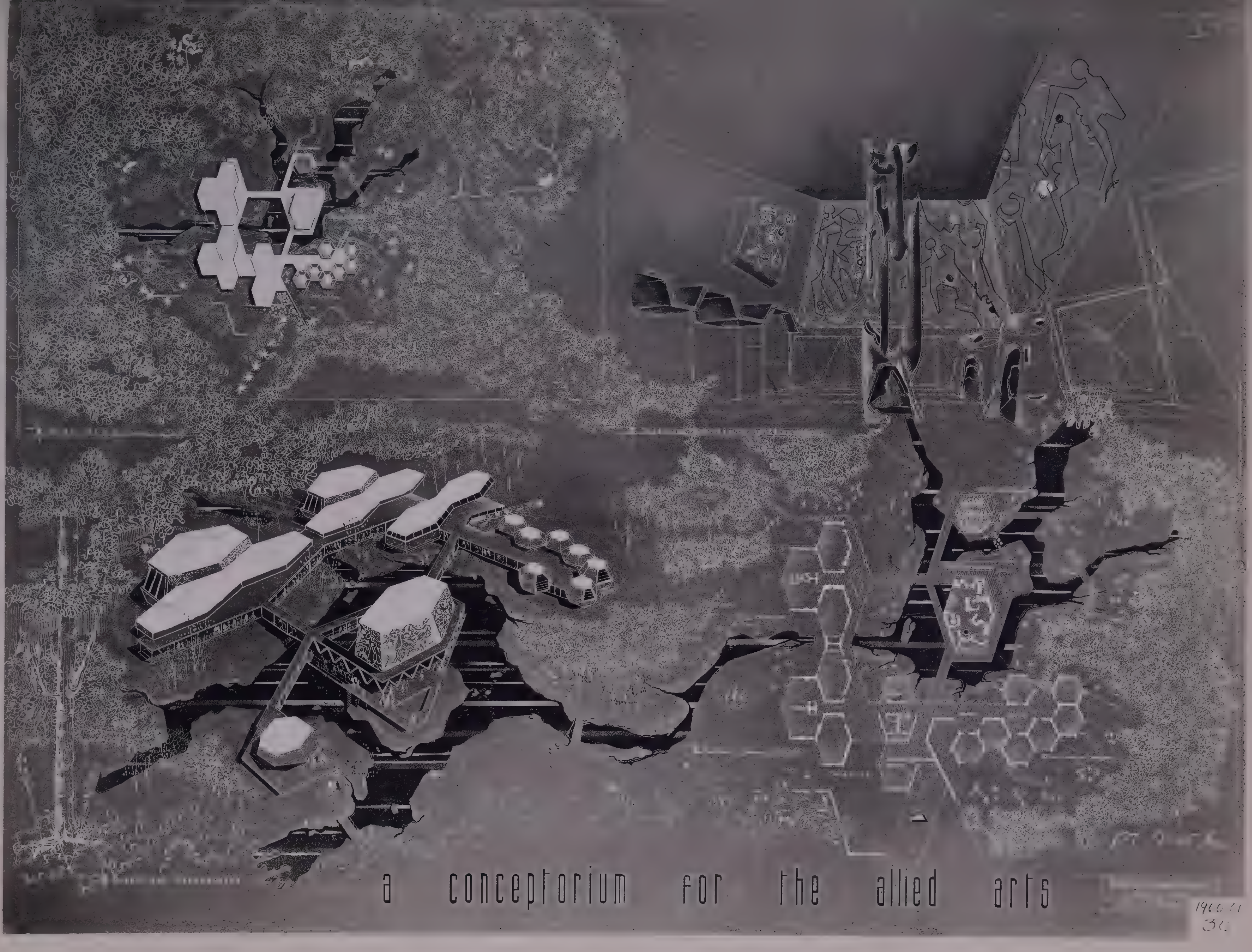


PLOT PLAN

COMMENTS

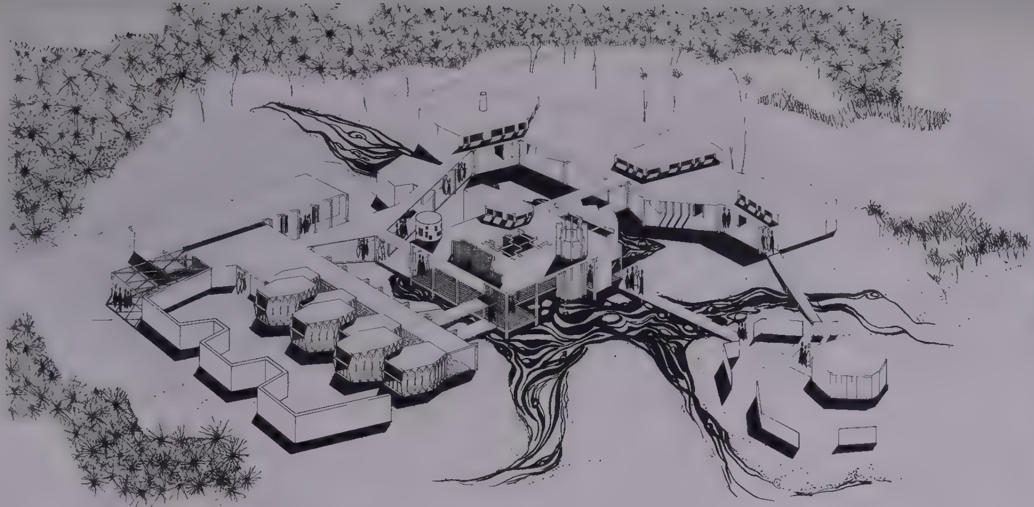
A CONCEPTORIUM
FOR THE APPLIED ARTS
ARTHUR KOBY
1133 E. 42ND ST BN.
THE COOPER UNION
T. WAISMAN

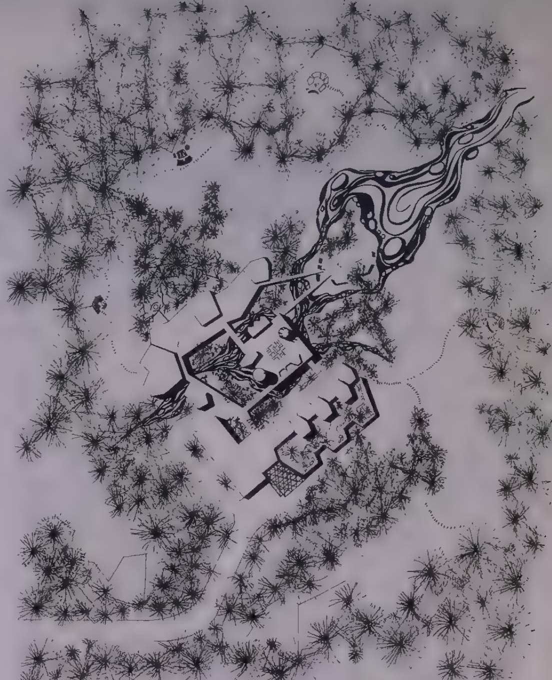
1960-61
29


a conceptorium for the allied arts

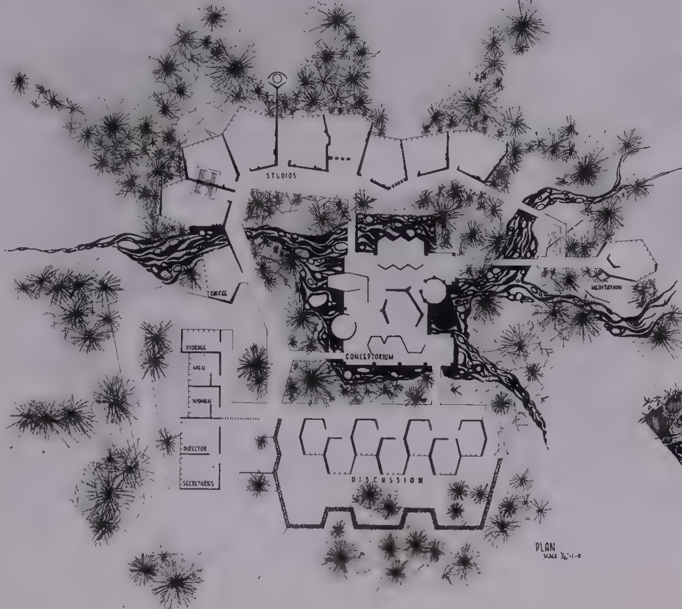
1960.11
30

I-13

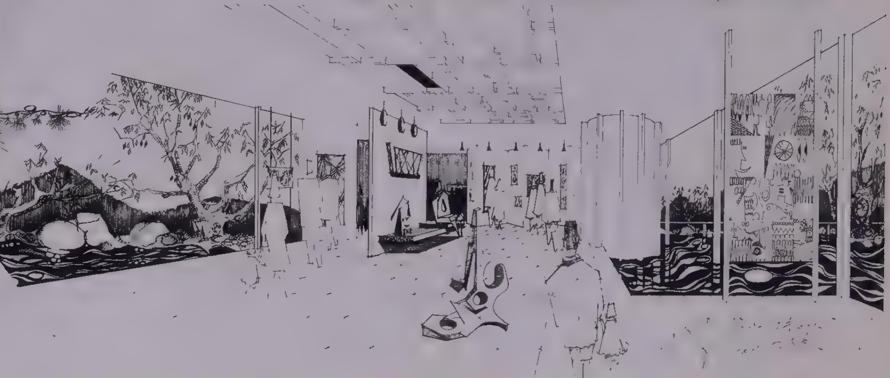




SITE PLAN
SCALE 1/32" = 1'-0"



PLAN
SCALE 1/16" = 1'-0



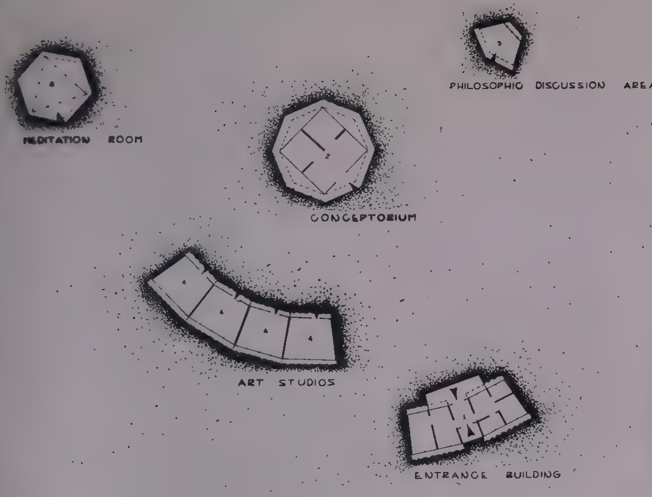
A CONCEPTORIUM FOR THE
ALLIED ARTS

DON L. WOODRIDGE
112 SO UNIV PL
STILLWATER, OKLAHOMA

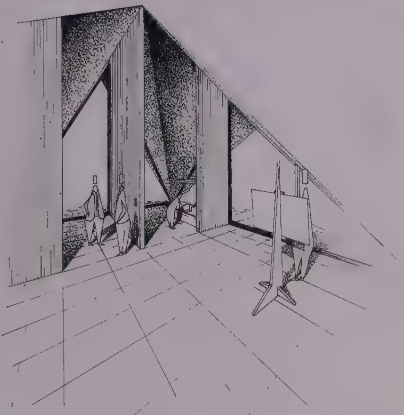
CLASS A DESIGN
OKLA STATE UNIV

1960-61
31

1



FLOOR PLANS
SCALE 1/8"=1'-0"



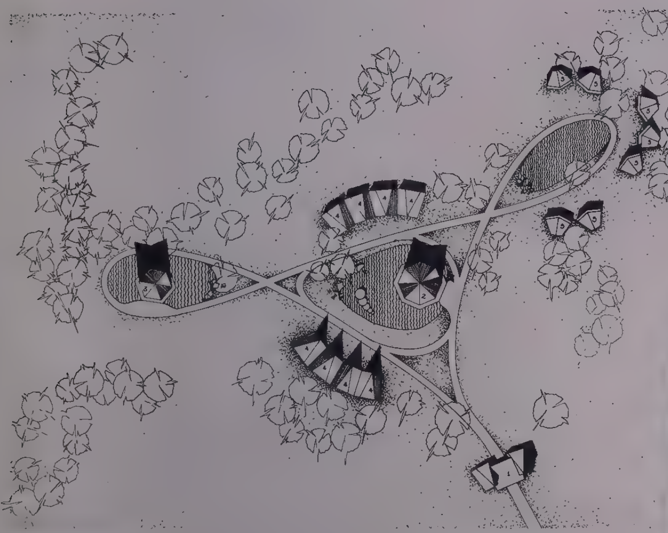
INTERIOR OF CONCEPTORIUM

A CONCEPTORIUM FOR ALLIED ARTS
INTERMEDIATE PROBLEM
IDAHO STATE COLLEGE
GERALD TEAL

HIRONS ALUMNI PRIZE

1960-61
32

I-28
12



1 — ENTRANCE BUILDING
2 — CONCEPTORIUM
3 — MEDITATION ROOM
4 — ART STUDIOS
5 — PHILOSOPHIC DISCUSSION AREA
P — POOLS

SITE PLAN
SCALE 1/16"=1'-0"

1960-61
32

EXTERIOR PERSPECTIVE

A CONCEPTORIUM FOR ALLIED ARTS
INTERMEDIATE PROBLEM
IDAHO STATE COLLEGE
GERALD TEAL

HIRONS ALUMNI PRIZE

1st Hon Men Placed 4th

PARTICIPANTS - 27 entries

The Cooper Union
Idaho State College
Oklahoma State University

AWARDS

Honorable Mention Placed 1st and Prize:
A. Koby, The Cooper Union
J. Sheikholeslami, Oklahoma State University
Placed 3rd - D. Wooldridge, Oklahoma State Univ.
Placed 4th - G. Teal, Idaho State College

Honorable Mention - R. A. Schulze, The Cooper Union
A. Thomson, The Cooper Union
L. Hite, Idaho State College
S. Feliciano, Oklahoma State U.
J. L. Chang, Oklahoma State U.
R. Shanks, Oklahoma State U.
D. R. Yancey, Oklahoma State U.

REPRODUCTIONS

# 29 A. Koby, The Cooper Union
# 30 J. Sheikholeslami, Oklahoma State University
# 31 D. Wooldridge, Oklahoma State University
# 32 G. Teal, Idaho State College

REPORT OF THE JURY
BY GERHARD KALLMANN

This unusual program on the whole did not produce any submissions that would not do equally well for any other and more ordinary educational group of buildings. At least amongst the designs which won first prizes on the basis of a general agreement amongst the jury there are no concepts which rise to the challenge of an unprecedented problem.

A. Koby's design Placed First on equal basis with the second related an arched alignment of studios to the hub of the meditation and conceptorium, in a composition which is informal and of a proper intimate scale. His plastic intent is conveyed in simple geometrical, and functionally apt building forms.

J. Sheikholeslami of Oklahoma State University, sharing the first prize employs a distended hexagrid in which compact and elongated versions of polygons serve as the art studios, the discussion units and the conceptorium. They are joined by the canopies of a cloister arrangement. The similarity of forms yet variance in scale presents him with a difficult compositional problem. There is an excess of surface decoration and unnecessary ornateness about the scheme.

Equally over-elaborate yet plastically much more successful in D. Wooldridge's design, Placed Third, Oklahoma State University. He has a particularly felicitous ricochet pattern of walls defining the studio spaces and the conceptorium. Unfortunately, these have to co-exist with a conventional orthogonal arrangement of the administration block, and yet a third pattern of hexagons for the discussion group. This latter group of buildings in addition have a pleated wall arrangement, of a modish native. Clearly less would have been much more. The result is that the scheme assumes too large a scale. There is enough going on here for a large campus.

G. Teal of Idaho State College, Placed Fourth, has a dispersed arrangement of geometric units which escapes disintegration by means of forceful landscaping.

None of the interiors of the conceptorium itself in any of the schemes are totally convincing. Perhaps there is no answer to which we could all agree in this very delicate area. The most significant ideas, as is usual in all competitions which are won on a majority votes, can be found amongst the designs given "Honorable Mention". Here A. Thomson of The Cooper Union gets perhaps closest to the heart of the problem. He groups subsidiary studios and discussion spaces closely around an inner space which contains the conceptorium above the meditation space. These inner spaces are only fitfully lit whereas the outer spaces are articulated as so many eye-sockets towards the outside world. The section of a split-level arrangement is not adequately documented to explain the complicated agglomeration of this building. So complex a concept demands a surety of handling architectural volumes which may be beyond that to be expected from an architectural student at the intermediary stage.

R. A. Schulze, The Cooper Union, has a most ingenious cellular pattern but shows a gross error in judgment in "going native" at the roof.

S. Feliciano, Oklahoma State University, shows the beginnings of a building of the kind of simplicity, seriousness, scale and constructural authenticity which this program perhaps demands for a satisfactory solution. This scheme also was too fragmentary fully to disclose its potential.

ADVANCED PROBLEM

U. S. PAVILION AT THE 1964 NEW YORK WORLD'S FAIR

NIAE "TEST-RUN" COMPETITION FOR THE 1962 LLOYD WARREN FELLOWSHIP

JURY OF AWARD - May 23, 1961

Gabriel S. Avallone
Joseph J. Caponnetto
Giorgio Cavaglieri
Alonzo W. Clark
Harvey P. Clarkson
Charles Rieger
Emanuel N. Turano
Sam Unger

PARTICIPANTS - 19 entries

Oklahoma State University
Pennsylvania State University
Pratt Institute
Unaffiliated - New York City

AWARDS

Honorable Mention Placed 1st and Scholarship -
  N. Babulewich, Pratt Institute
Honorable Mention Placed 2nd and Scholarship -
  H. L. Mason, Oklahoma State University

  Placed 3rd - R. M. Cramer, Oklahoma State Univ.
  Placed 4th - T. Hirniak, Oklahoma State University
  Placed 5th - A. W. Brunken, Oklahoma State Univ.

Honorable Mention
  M. G. Photiadis, Oklahoma State University
  V. Caruso, Pratt Institute

REPRODUCTIONS

# 33	N. Babulewich, Pratt Institute
# 34	H. L. Mason, Oklahoma State University
# 35	R. M. Cramer, Oklahoma State University
# 36	T. Hirniak, Oklahoma State University
# 37	A. W. Brunken, Oklahoma State University

REPORT OF THE JURY
BY HARVEY P. CLARKSON

The jury, after analyzing the program with its complexities of exhibit needs, dining facilities, auditoriums, etc. came to the conclusion that its most important requirement was that calling for an expression of the ideals and spirit of the Host country, the United States of America. At this point, despite the maze of details, the ability to recognize and express this requirement, distinguished the premiated submissions.

Typical of all premiated entries was a strong sense of unity in the entire building complex. At the same time, the structural forms were free and open thus expressive of our way of life.

No submission lacking in the basic concept, regardless of how successfully detailed requirements had been considered, was felt to be an adequate solution.

The first five projects, in varying degrees, offered striking and outstanding monuments to American creativity. With further development any one of them could be made to satisfy both the functional and structural requirements of the program. They all indicated desirable flexibility for arrangement of exhibits, and, most important, a clearly defined pattern of visitor circulation.

No doubt, the nature of the problem, and the time limit of three days, resulted in so few entries to a very challenging and timely problem. The jury felt justified in anticipating a greater response since the subject of the problem had been announced last fall.

SPECIAL COMPETITION

COMMITTEE OF STAINLESS STEEL PRODUCERS AMERICAN IRON AND STEEL INSTITUTE

A REPETITIVE REFRESHMENT STAND FOR THE WORLD'S FAIR GROUNDS

JURY OF AWARD - May 23, 1961

Gabriel S. Avallone
George Beiers
John J. Carlos
Allen R. Congdon
William F. Ellis
Caleb Hornbostel
Seymour R. Joseph
Joseph Judge
Gerhard M. Kallmann
Sidney L. Katz
Alexander Kouzmanoff
George Fred Poehler
Patrick Raspante
John Stonehill

Committee of Stainless Steel Producers, American Iron and Steel Institute - Representatives:
Richard E. Paret
James Marquardt
Ernest Bolduc
D. W. Pettigrew
Dr. Arthur Weinberg

PARTICIPANTS - 79 entries

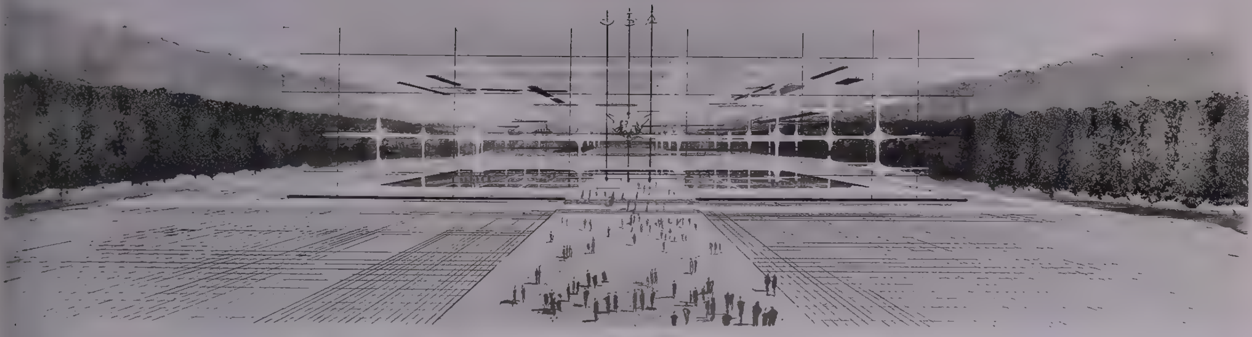
Columbia University
Idaho State College
Institute of Design & Construction
Oklahoma State University
University of Illinois
University of Notre Dame
Unaffiliated - New York City

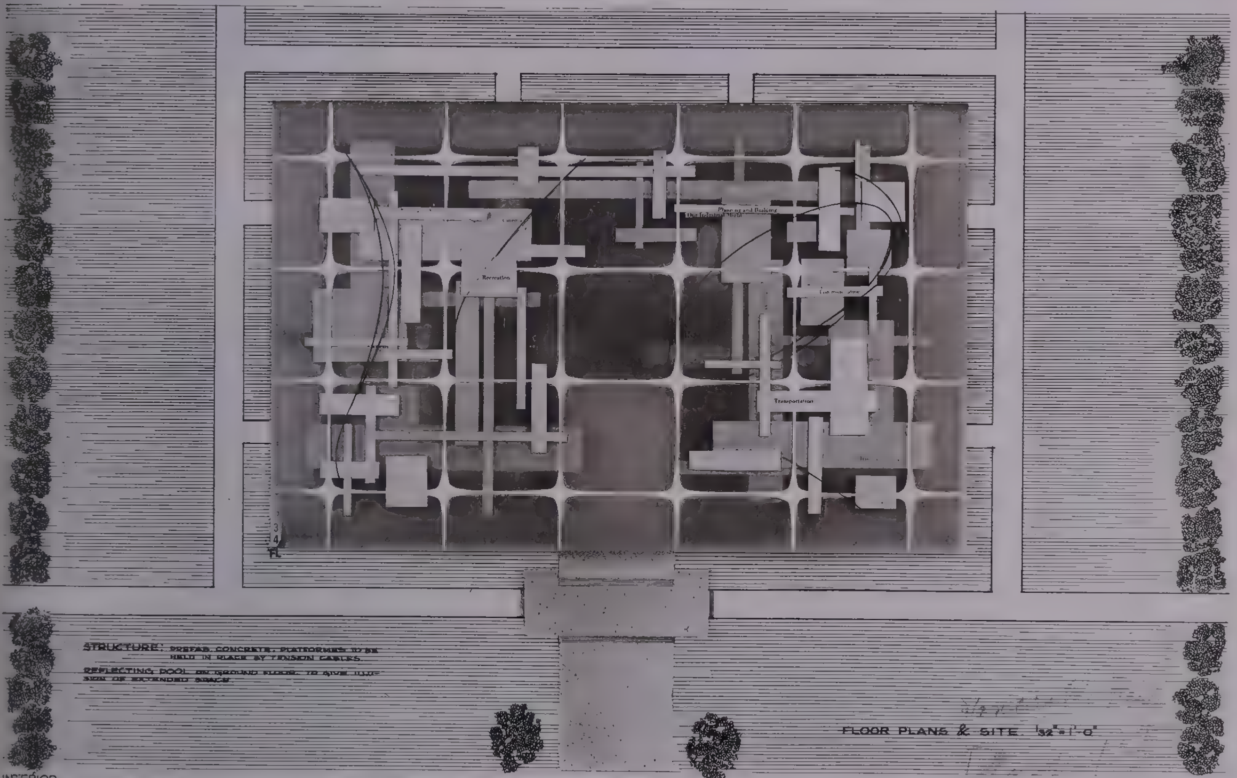
AWARDS

Honorable Mention Placed 1st and Prize $800 -
  R. L. Amico, University of Illinois
Honorable Mention Placed 2nd and Prize $600 -
  R. R. Bergmann, University of Illinois
Honorable Mention Placed 3rd and Prize $400 -
  A. C. Frangella, University of Illinois
Honorable Mention Placed 4th - S. Winters, U. of Ill.
  Placed 5th - W. M. Lisec, U. of Ill.

Honorable Mention -
  G. Albers, University of Illinois
  S. Soto, Institute of Design and Construction
  M. Schwartz, Columbia University
  C. Klaus, University of Illinois
  H. Friborg, University of Illinois
  L. G. Shaw, University of Illinois
  J. S. Daley, Oklahoma State University

A-16



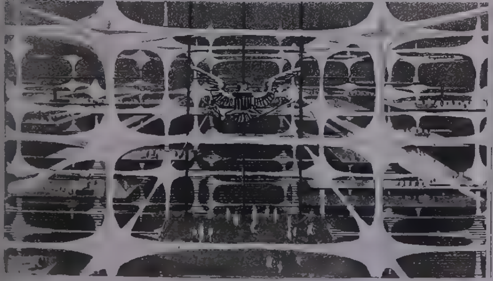


STRUCTURE: PREFAB CONCRETE, PLATFORMES TO BE HELD IN PLACE BY TENSION CABLES.

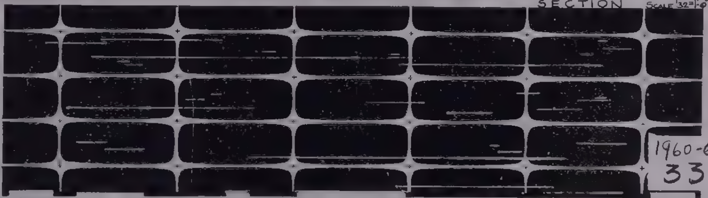
REFLECTING POOL ON GROUND FLOOR TO GIVE ILLUSION OF EXTENDED SPACE.

FLOOR PLANS & SITE 1/32"=1'-0"

INTERIOR



SECTION SCALE 1/32"=1'-0"

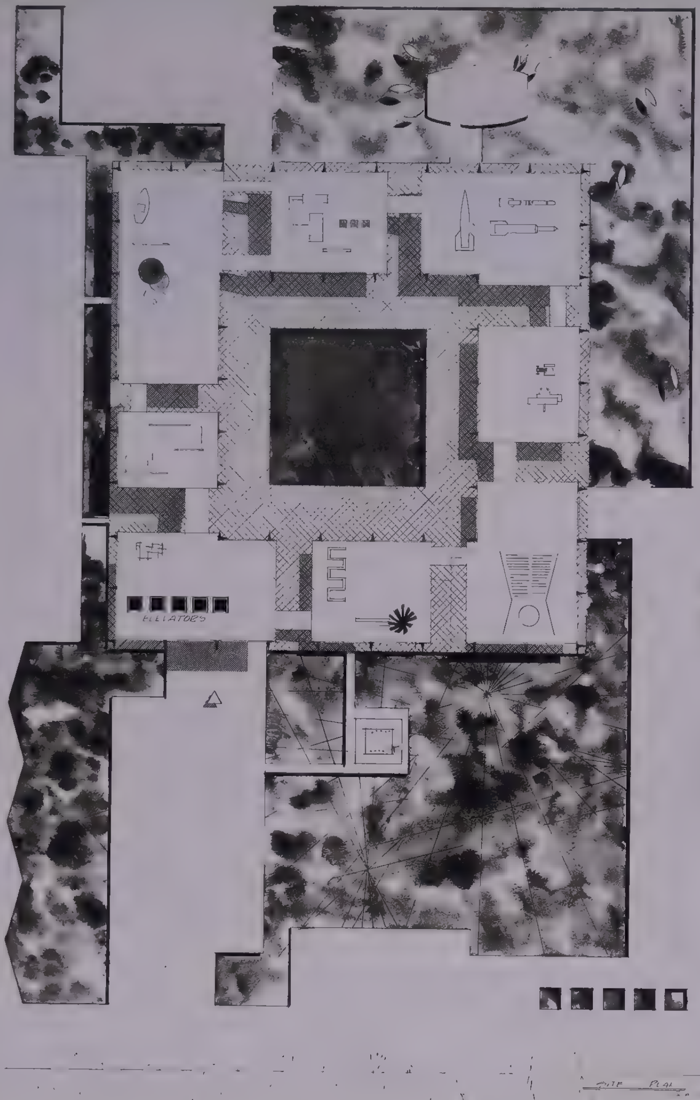


1960-61
33

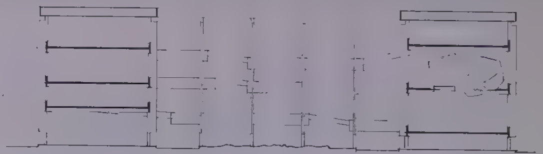
CONCEPT: THIS KEY BUILDING, THE PAVILION OF THE U.S.A. SHOULD EXPRESS ITS IMPORTANCE NOT AS A SYMBOL OF DOMINATION AND POWER OF ABSOLUTE RULE, BUT AS A SYMBOL OF DEMOCRACY OPEN TO ALL, VARIATY OF CHOICE, AND INDIVIDUALITY OF SPACE, YET THE BUILDING MUST BE WORTHY OF THE U.S.A. AND THEREFOR NEEDS AN EXPRESSION OF CLARITY, UNITY, REFINEMENT AND DIGNETY.

N. BABULEWICH
8 EAST ST. JERSEY CITY, N.J
PRATT INSTITUTE, N.Y.C

UNITED STATES PAVILION AT THE
NEW YORK WORLD'S FAIR 1964
LLOYD WARREN FELLOWSHIP
TEST-RUN COMPETITION FOR 1962

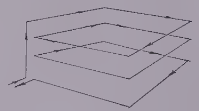


SITE PLAN

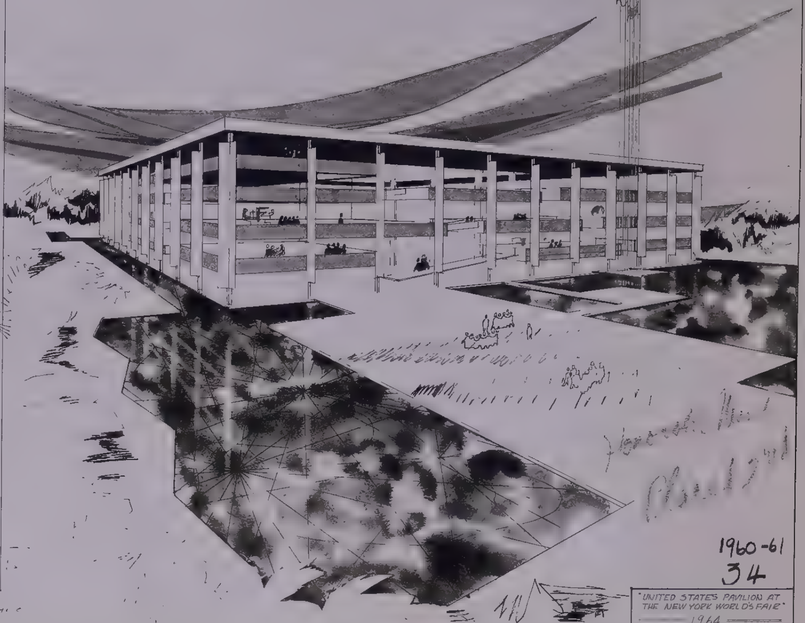


SECTION
Scale 1/32 = 0

NOTE: AUDITORIUMS ARE LOCATED ON DIFFERENT LEVELS NEAR THEIR RESPECTIVE DISPLAYS. RESTUARANTS ARE ALSO LOCATED THROUGHOUT THE BUILDING.



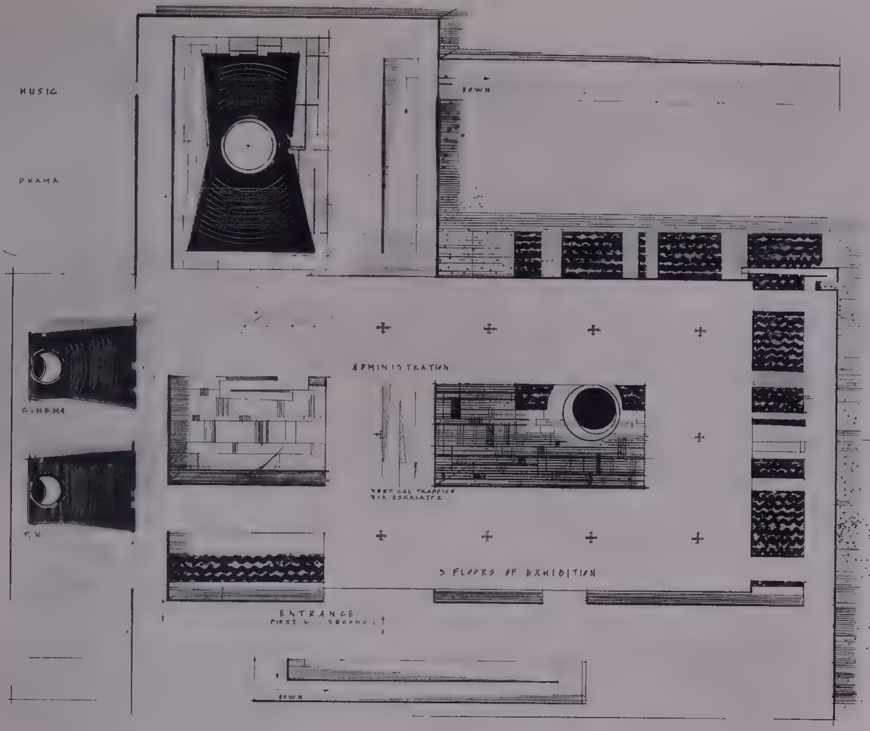
CIRCULATION DIAGRAM



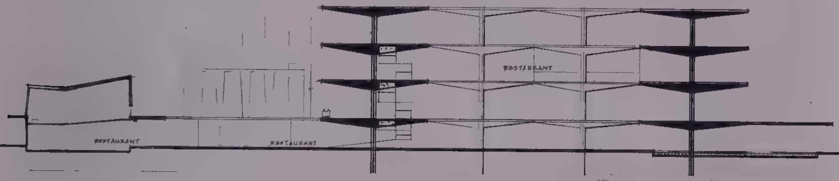
1960-61
34

"UNITED STATES PAVILION AT THE NEW YORK WORLD'S FAIR"
1964
[illegible] MASON
[illegible]
[illegible]
[illegible]

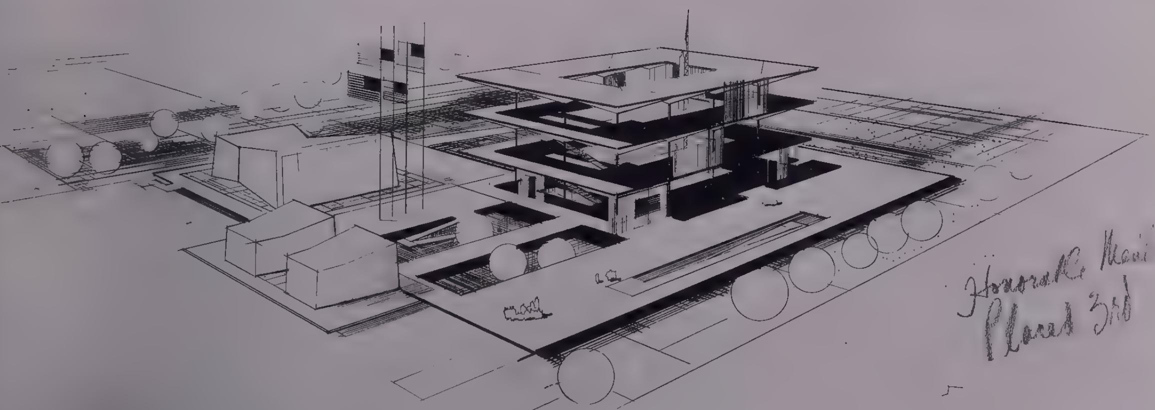
A 2



SECOND LEVEL – PLOT PLAN SCALE: 1/32" = 1'-0"



SECTION 1-1 SCALE 1/32" = 1'-0"

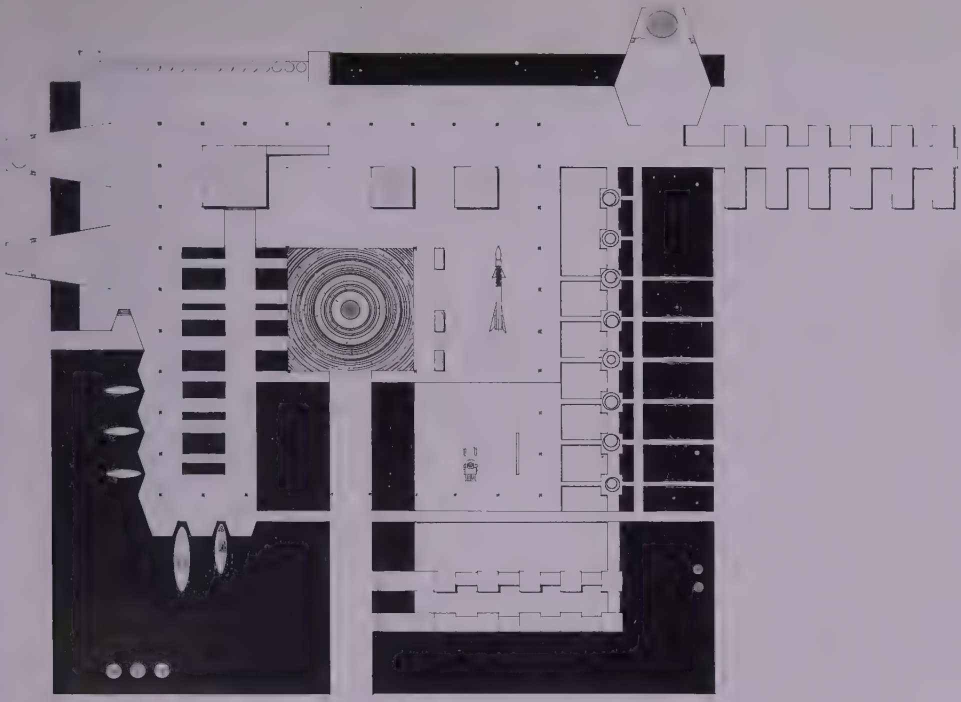


Honorable Mention
Placed 3rd

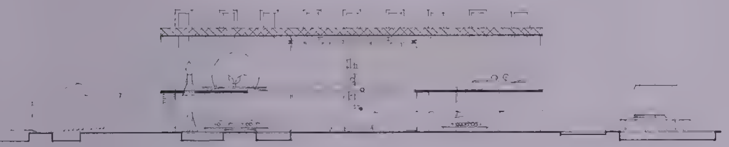
1960-61
35

UNITED STATES PAVILION AT THE
NEW YORK'S WORLD'S FAIR 1964
RICHARD W. CRAMER
110 CORDELL HALL OSU STILLWATER OKLA
OKLAHOMA STATE UNIVERSITY
CLASS A' THREE-DAY [illegible]

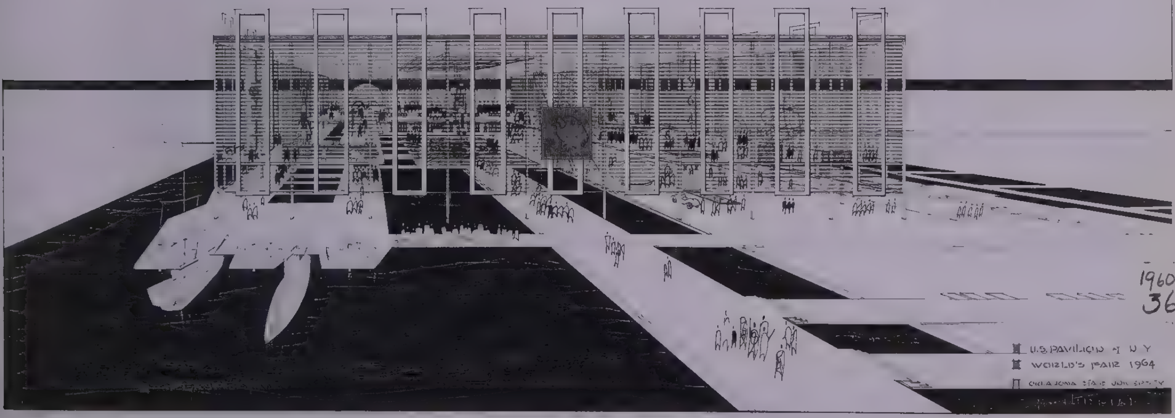
A-3



FLOOR PLAN

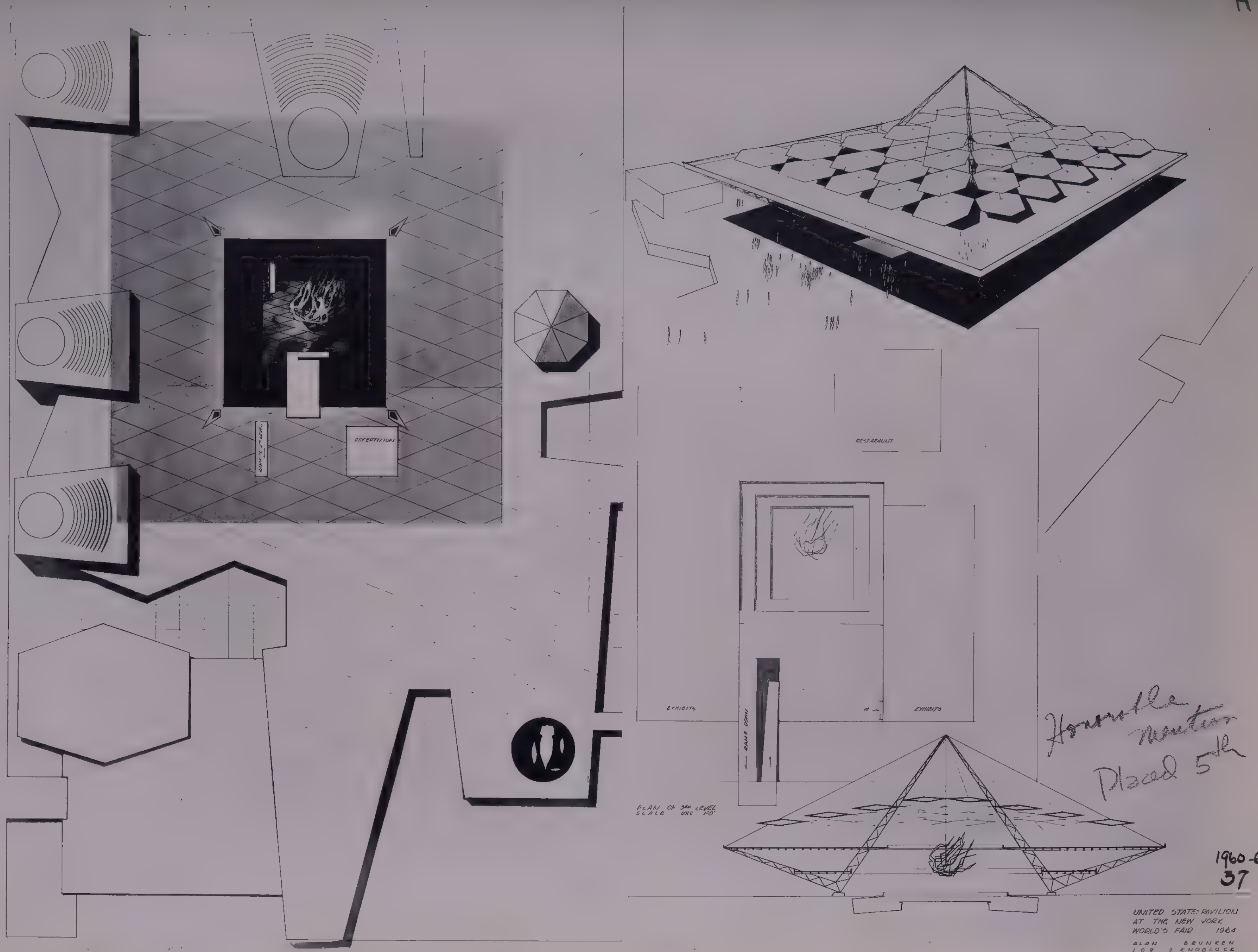


SECTION



1960-61
36

U.S. PAVILION AT N.Y.
WORLD'S FAIR 1964
OKLAHOMA STATE UNIVERSITY
[illegible]



PLAN OF 3RD LEVEL
SCALE 1/32" 1'-0"

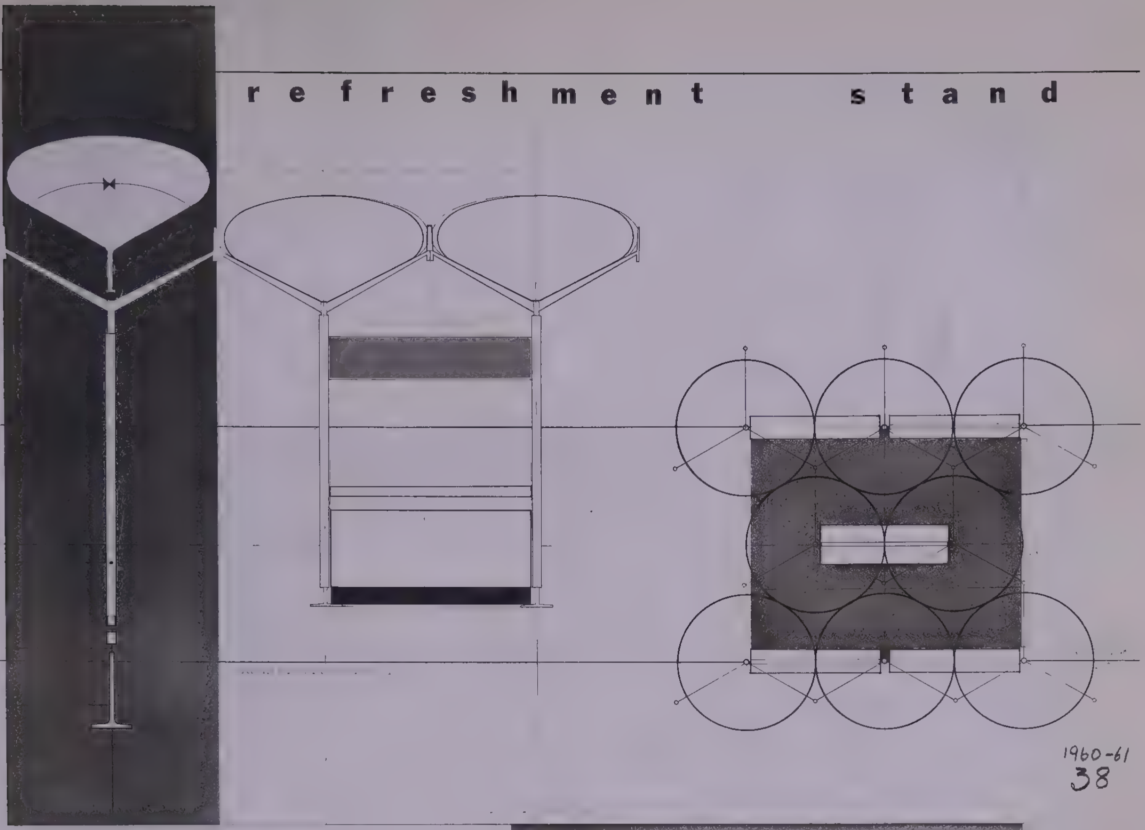
Honorable mention
Placed 5th

1960-61
37

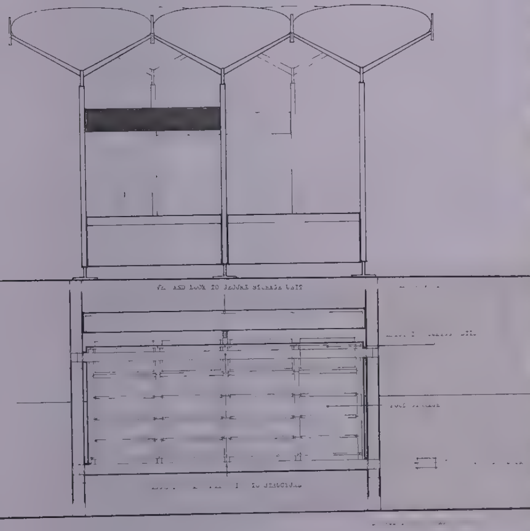
UNITED STATES PAVILION
AT THE NEW YORK
WORLD'S FAIR 1964

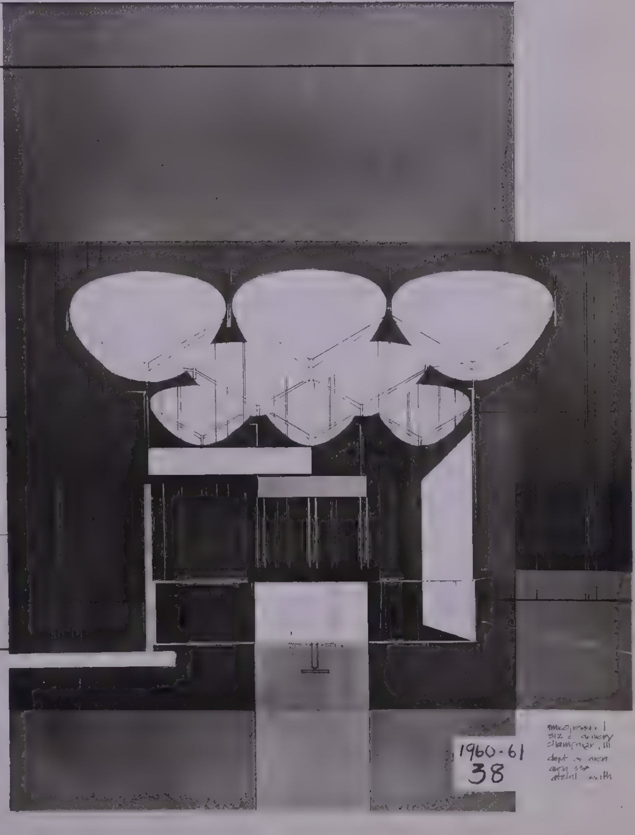
ALAN BRUNKEN
109 S KNOBLOCK
OKLA STATE UNIV. CLASS A

refreshment stand



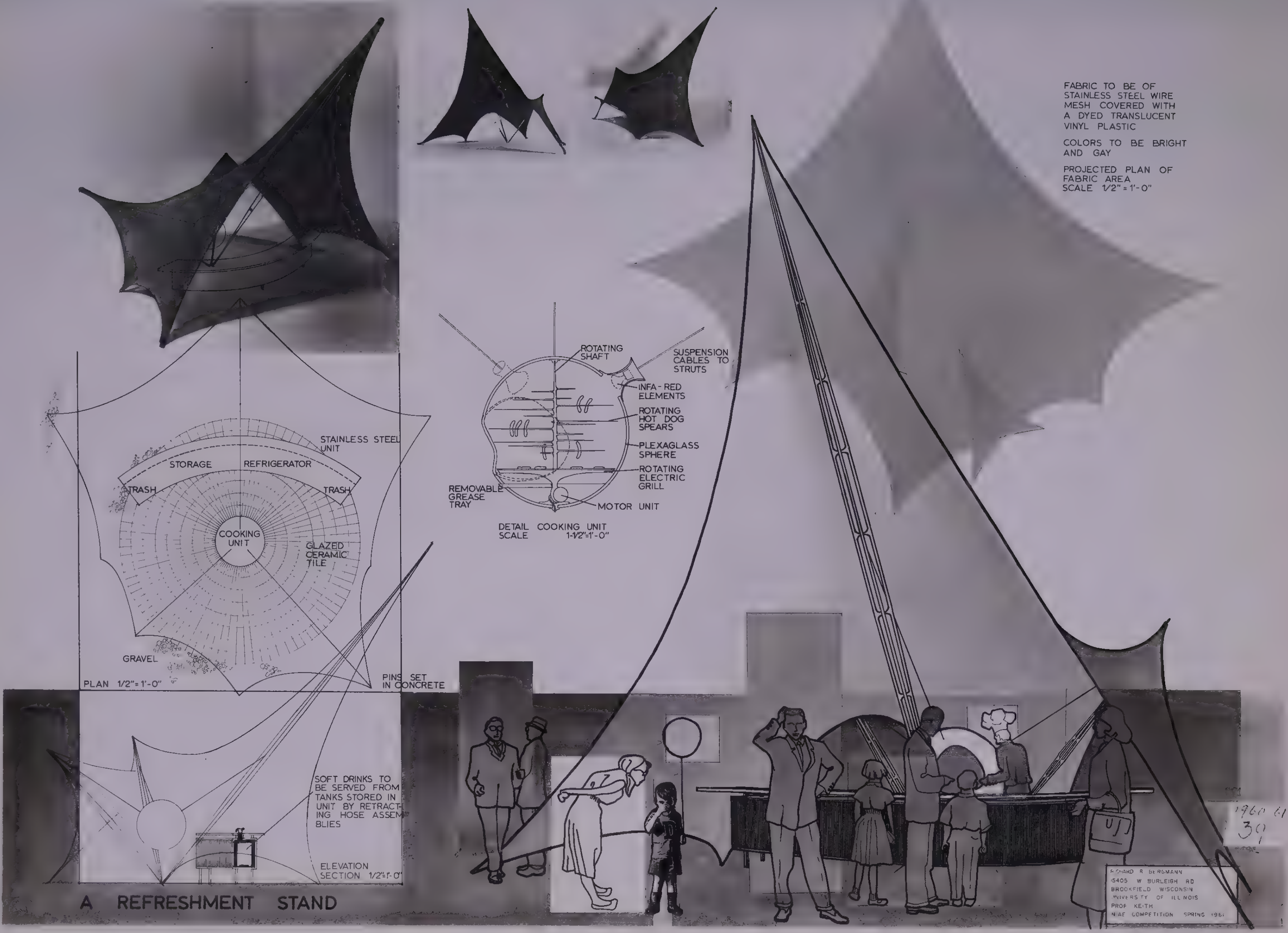
1960-61
38





1960-61
38

[illegible]
512 e [illegible]
champaign, ill
dept of arch
arch [illegible]
[illegible] smith



DETAIL COOKING UNIT
SCALE 1-1/2"=1'-0"

PLAN 1/2"=1'-0"

SOFT DRINKS TO BE SERVED FROM TANKS STORED IN UNIT BY RETRACTING HOSE ASSEMBLIES

ELEVATION SECTION 1/2"=1'-0"

FABRIC TO BE OF STAINLESS STEEL WIRE MESH COVERED WITH A DYED TRANSLUCENT VINYL PLASTIC

COLORS TO BE BRIGHT AND GAY

PROJECTED PLAN OF FABRIC AREA
SCALE 1/2"=1'-0"

A REFRESHMENT STAND

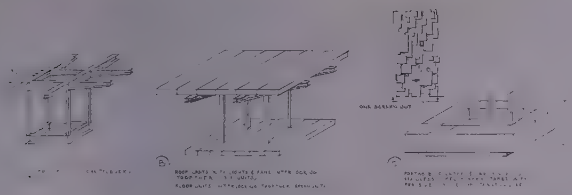
RICHARD R BERGMANN
5405 W BURLEIGH RD
BROOKFIELD WISCONSIN
UNIVERSITY OF ILLINOIS
PROF KEITH
NIAE COMPETITION SPRING 1961

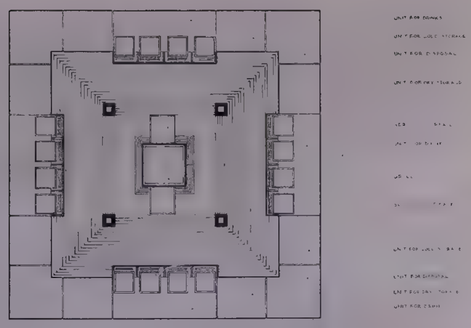
1960-61
39

S-(

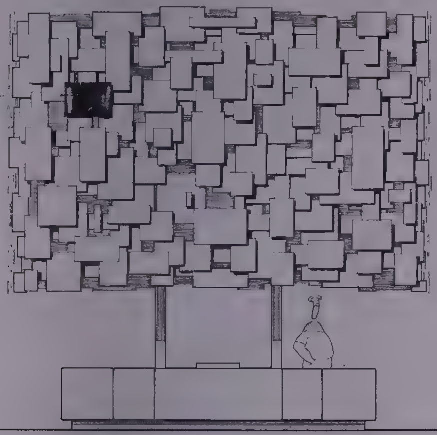
A REFRESHMENT STAND FOR THE (1964) WORLD'S FAIR

CONSTRUCTION PROCEDURE

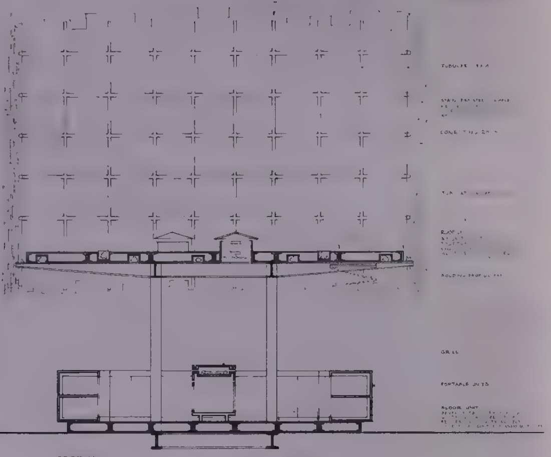

ONE SCREEN OUT
CANTILEVER
B
ROOF UNITS WITH LIGHTS & FANS INTERLOCKING TOGETHER
FLOOR UNITS INTERLOCKING TOGETHER
C



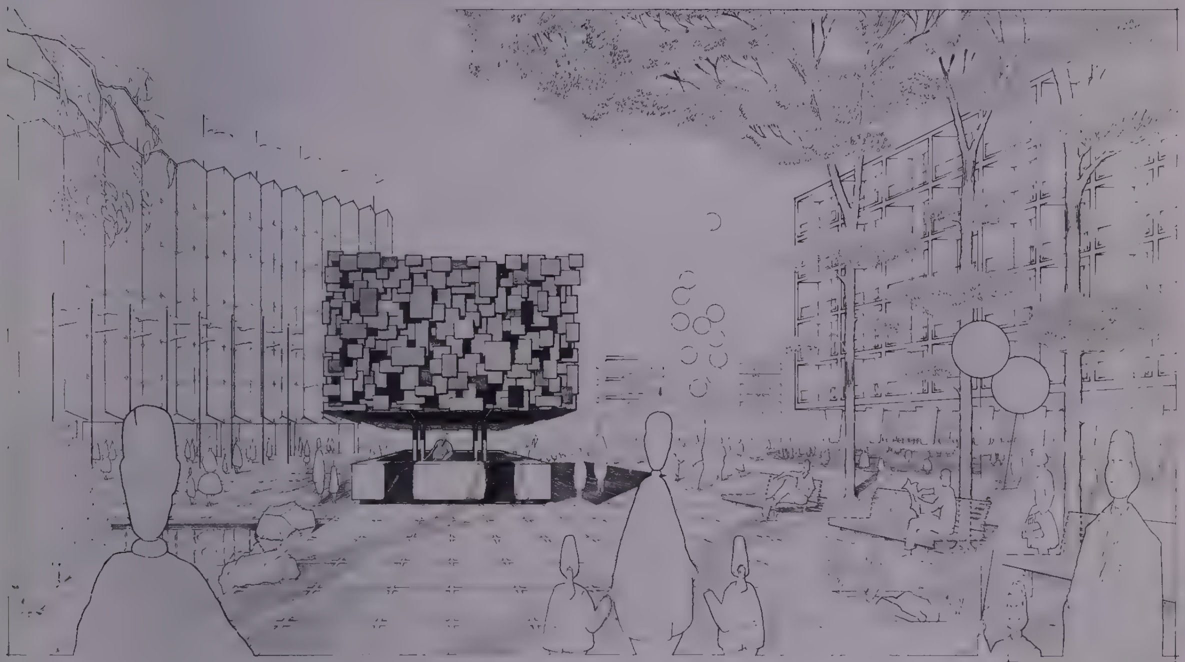
PLAN SCALE 1/2" = 1'-0"



ELEVATION SCALE 1/2" = 1'-0"

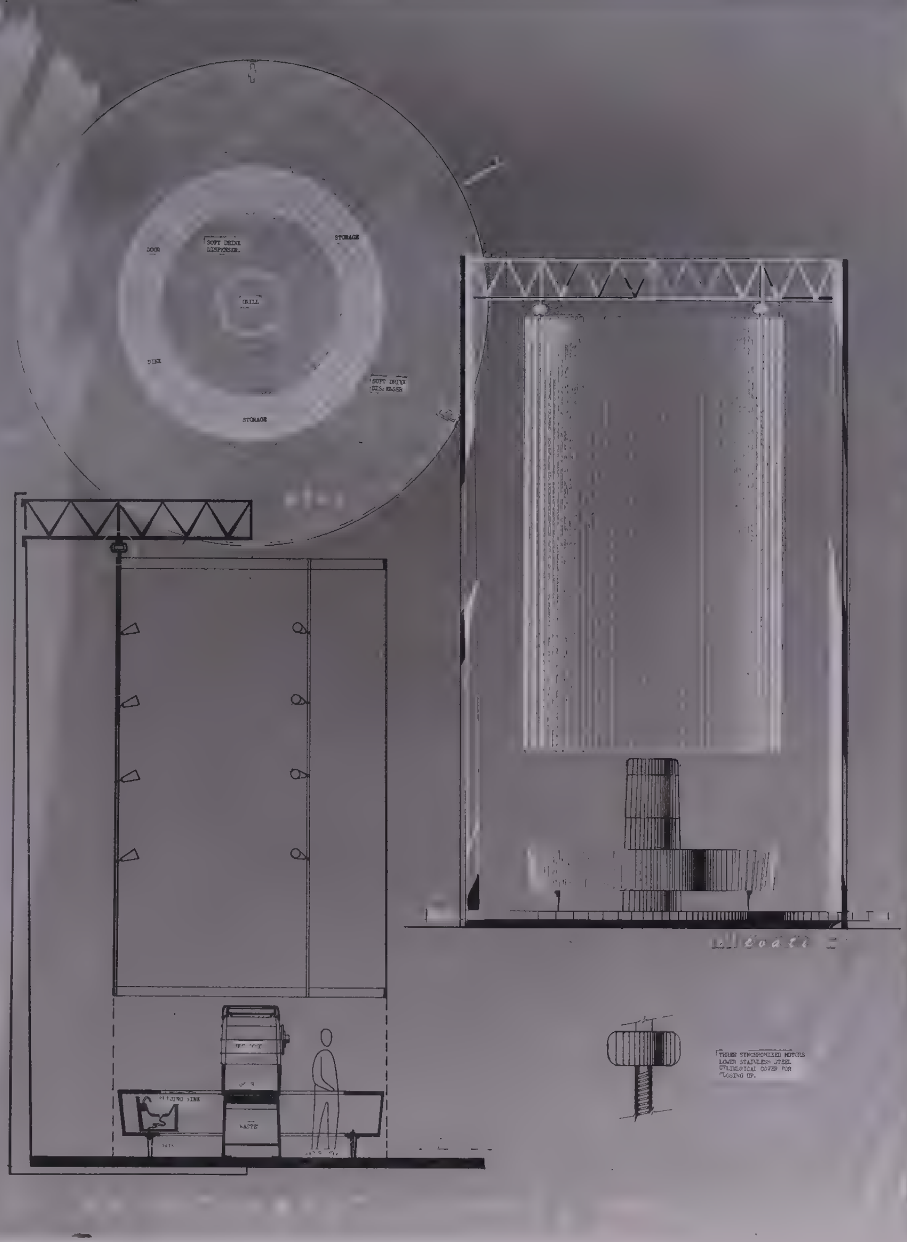


SECTION SCALE 1/2" = 1'-0"

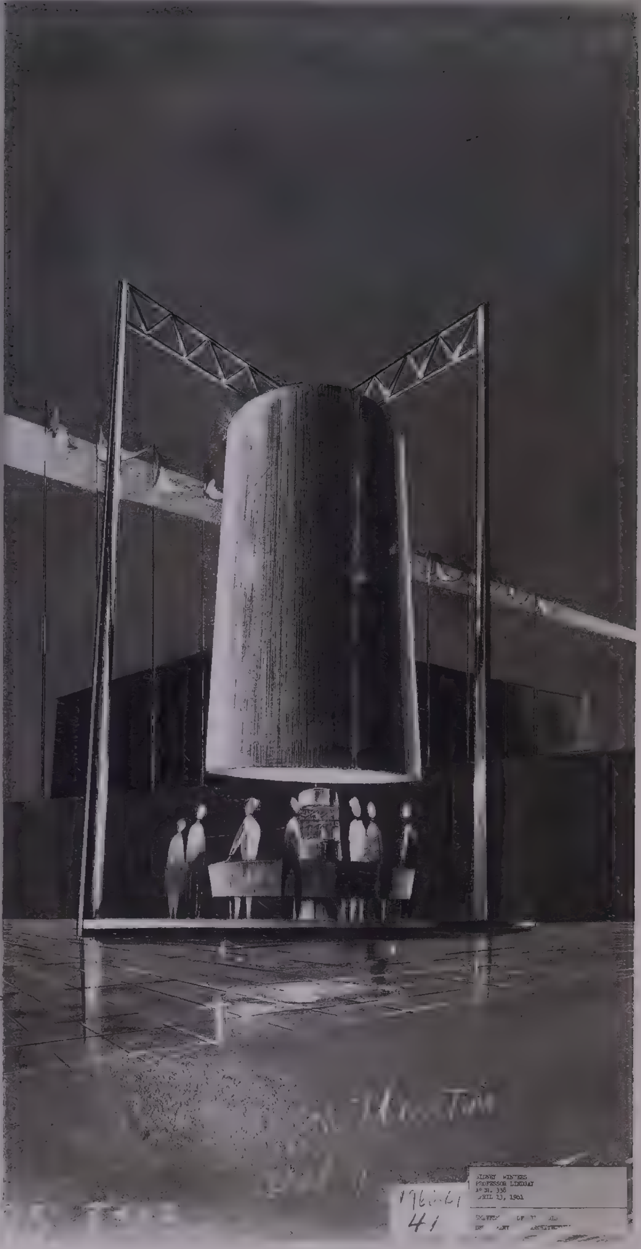


1960-61
40

FRANGELLA ANTHONY. C
1518 E 77TH ST CHICAGO. 19 ILL.
UNIVERSITY OF ILLINOIS. URBANA
BAKER ATELIER
SPRING 1961
SPECIAL COMPETITION

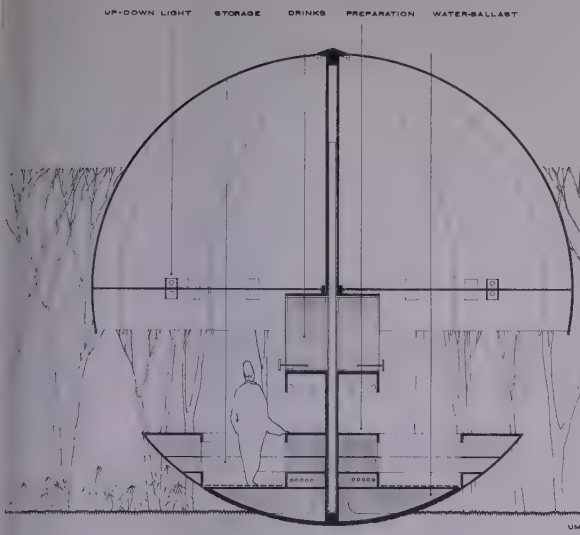


THREE SYNCHRONIZED MOTORS LOWER STAINLESS STEEL CYLINDRICAL COVER FOR CLOSING UP.

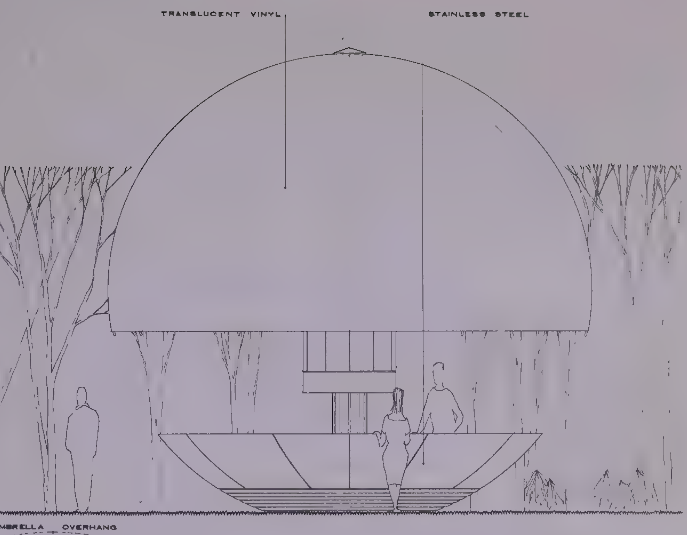


SIDNEY WINTERS
PROFESSOR LINDSAY
ARCH. 338
APRIL 13, 1961

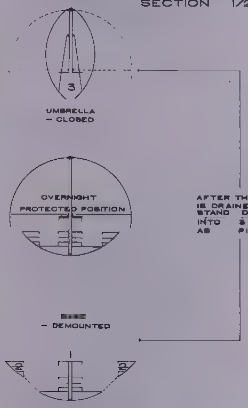
1960-61
41



SECTION 1/2" 1'-0"



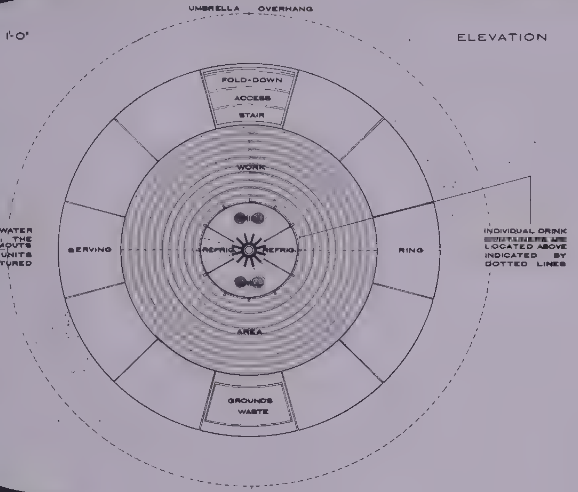
ELEVATION 1/2" 1'-0"



UMBRELLA
- CLOSED

[redacted]
- DEMOUNTED

AFTER THE WATER IS DRAINED, THE STAND DEMOUTS INTO 3 UNITS AS PICTURED



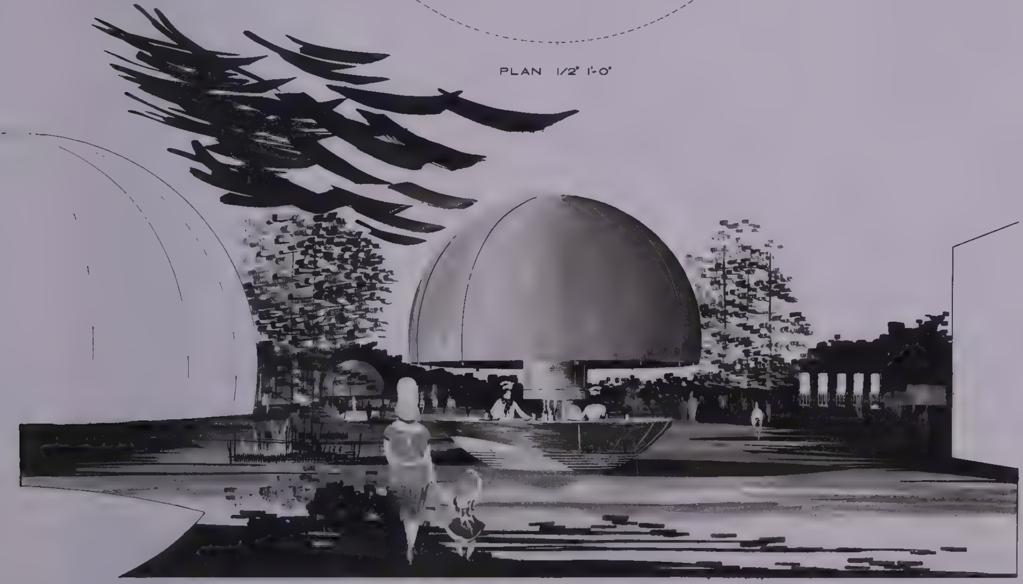
INDIVIDUAL DRINK
[redacted]
LOCATED ABOVE
INDICATED BY
DOTTED LINES

PLAN 1/2" 1'-0"

A SEGMENT OF A SPHERE, SET IN AN EARTH CRATER IS FILLED WITH THREE TONS OF WATER, PROVIDING STABILITY. IN THE PROCESS OF DEMOUNTING, THE WATER IS

CONCEPT

ALLOWED TO DRAIN; LEAVING THE LIGHTWEIGHT STAINLESS STEEL VESSEL EASILY TRANSPORTABLE. THE STAND DEMOUNTS INTO 3 MAJOR UNITS.



1960-61
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A REPETITIVE REFRESHMENTS STAND

FOR THE 1964 NY WORLD'S FAIR

WARREN MICHAEL LISEC
704 W. CALIFORNIA
URBANA ILLINOIS
UNIVERSITY OF ILLINOIS

ADVANCED COMPETITION

REPRODUCTIONS

#38 R. L. Amico, University of Illinois
#39 R. R. Bergmann, University of Illinois
#40 A. C. Frangella, University of Illinois
#41 S. Winters, University of Illinois
#42 W. M. Lisec, University of Illinois

REPORT OF THE JURY
BY SEYMOUR R. JOSEPH

The essential requirements of the program requested he student to incorporate the following in his design nd, the jury used these criteria for judging the ubmissions:

a. Easy identification.
Unitized structure, both modular and demountable.
Suitable use of material; easy maintenance.
Food storage and dispensing center.
Exciting and inviting.

t was the jury's consensus of opinion that the entry warded First Prize $800, by R. L. Amico of the Jniversity of Illinois, best answered the program equirements.

The top award was given for an excellent basic idea f automatic storage and food dispensing units. The est of several automatic-type ideas submitted.

The light and airy structural frame was good for re-etitive use. The "Y" shaped framework atop the tainless steel posts supporting the inflated balloons vould provide a gay and colorful effect. The scheme n its entirety was both playful and exposition-like in haracter, suitable for a World's Fair.

The triangular shaped openings between the balloons ffered no protection from inclement weather. It was uggested these spaces be sealed with clear plastic heets.

t was regrettable that some aspects of the design vere vague and the jury felt that the design should ave been developed further in greater detail. The ury appreciated the time limit factor and that this vas only a ten-day sketch.

The design by R. R. Bergmann of University of Illinois warded Second Prize was the most imaginative and xciting in the competition. The professional-type lelineation presented the scheme at a glance.

The umbrella-type structure, in a practical and crea-ive form, is covered with a fabric of stainless steel vire. A translucent colored vinyl plastic sheet over his fabric web offers protection from the elements.

The intriguing centrally located cooking unit is both ppealing and eye-catching.

Several members of the jury questioned the repetitive se of this design.

The design of A. C. Frangella, University of Illinois, was awarded Third Prize on the basis of its outstanding use of stainless steel, simplified structural frame, ease of assembly and practical plan.

The upper enclosure of a stainless steel grille with concealed spot lighting would be very decorative, colorful and effective as an easily identified unit.

The hollow-empty space behind this billboard-type grille enclosure was judged wasteful. The overall appearance is not as exciting as the First and Second Prizes. The design of the grille itself echoes, regrettably, some of the design entries in the 1956 Aluminum Curtain Wall Competition, or more recently some of the rigidized metal patterns.

The Honorable Mention Placed Fourth, design of S. Winters, University of Illinois, offers a very effective design of a stainless steel cylinder suspended from a truss framework supported on three posts. The cylinder, which can be lowered over the food dispensing area, securely closes the unit from vandalism.

The Honorable Mention Placed Fifth, design of W. M. Lisec, University of Illinois, is very similar in concept to the design placed Fourth. The spherical segments present a good use of the material and protection from the elements. The design appears to be too appealing and seems to invite one to stay and eat at the counter which is contrary to the program. Good presentation.

The Honorable Mention by G. Albers, University of Illinois, presented a good practical solution in a very sophisticated design. The toned, hanging, stainless steel rods would produce harmonious sounds by air movement. Good use of material, however, the jury questioned the practicability of the rods in stormy weather. The sophisticated design seems too permanent and not World Fair in character.

SPECIAL COMPETITION

TILE COUNCIL OF AMERICA, INC.

EXHIBIT BUILDING AT THE 1964 NEW YORK WORLD'S FAIR

JURY OF AWARD - May 23, 1961

Joseph J. Caponnetto
Giorgio Cavaglieri
Alonzo W. Clark, III
H. Dickson McKenna
Charles Rieger
Caleb Hornbostel
Maurice R. Salo
Richard B. Snow
Emanuel N. Turano
Sam Unger

PARTICIPANTS - 50 entries

Oklahoma State University
Pennsylvania State University
University of Illinois
University of Notre Dame
Unaffiliated: New York City

AWARDS

Honorable Mention Placed 1st and Scholarship -
J. W. Bruza, Oklahoma State University
R. L. Wright, Oklahoma State University
Honorable Mention Placed 3rd - M.G. Photiadis
Placed 4th - K. A. Moore
Placed 5th - T. Hirniak,
(all of Oklahoma State University)

Honorable Mention:
R. L. Brase, Oklahoma State University
J. Daley, Oklahoma State University
E. Downs, Oklahoma State University
M. E. Gerardy, Oklahoma State University
F. L. Johns, Oklahoma State University

REPRODUCTIONS

43 J. W. Bruza, Oklahoma State University
44 R. L. Wright, Oklahoma State Universitv
45 M. G. Photiadis, Oklahoma State University
46 K. A. Moore, Oklahoma State University
47 T. Hirniak, Oklahoma State University

REPORT OF THE JURY
BY GIORGIO CAVAGLIERI

In general the submissions gave the impression to the jurors that the project held great interest for the students. A large number of entries showed great care had been taken in graphic indication of the character of the material selected (tile), sometimes to excess, thus overpowering the presentation of the architectural concept. Many competitors emphasized different portions of the exhibit as a series of space experiences, which was considered desirable; the jury felt, however, that the general character of the building itself should be experienced as a unit within the assigned lot.

After examining all entries, twelve remained for the final analysis. The jurors found themselves divided in their decisions as to which should be eliminated; this, of course, resulted in an interesting debate on the specific qualities and faults of each of the entries. The entries that remained in the running for the prizes were all submissions of a high caliber not only in the general concept, but also in the competence of the presentation. The two selected for the scholarships represented very different approaches. One interpreted the exhibition as a succession of spaces of different dimensions and sculptural character; the other as a single path with panels distributed either along a wall or on horizontal surfaces or with sculptural elements of abstract form.

In the design of R. L. Wright of Oklahoma State University, who received one of the scholarships, the visitors were expected to go through several levels and look at walls and floors within spaces contained in a high rectangular block.

In the other design awarded a scholarship, by J. W. Bruza also of Oklahoma State University, there was free circulation around and between two main elements, partly under a roof and partly in the open: This presented the visitors with simple variable spaces.

The next runner-up, M. G. Photiadis of Oklahoma State University, followed the idea of a ramp rising around a sculptural pylon, conducting visitors through panels and walls with successively open and closed spaces.

Some of the other "Mention" submissions obtained very elegant, simple pavilions in which screens and panels exhibited various designs obtained with tiles. However, even if well handled and elegantly designed in the three dimensions, these solutions did not bring the excitement and variety of experiences which the prize submissions achieved.

All the premiated entries were concerned with separating the lot under study from those adjoining it and treated the entire area assigned with the basic material - tile, leaving trees, planting and in some cases pools and fountains within the tiled surface. This is a technique of which the Arabs were masters during their occupation of Spain in the 13th and 14th centuries when the use of tile was actually at its peak. It seemed, therefore, quite appropriate for this competition.

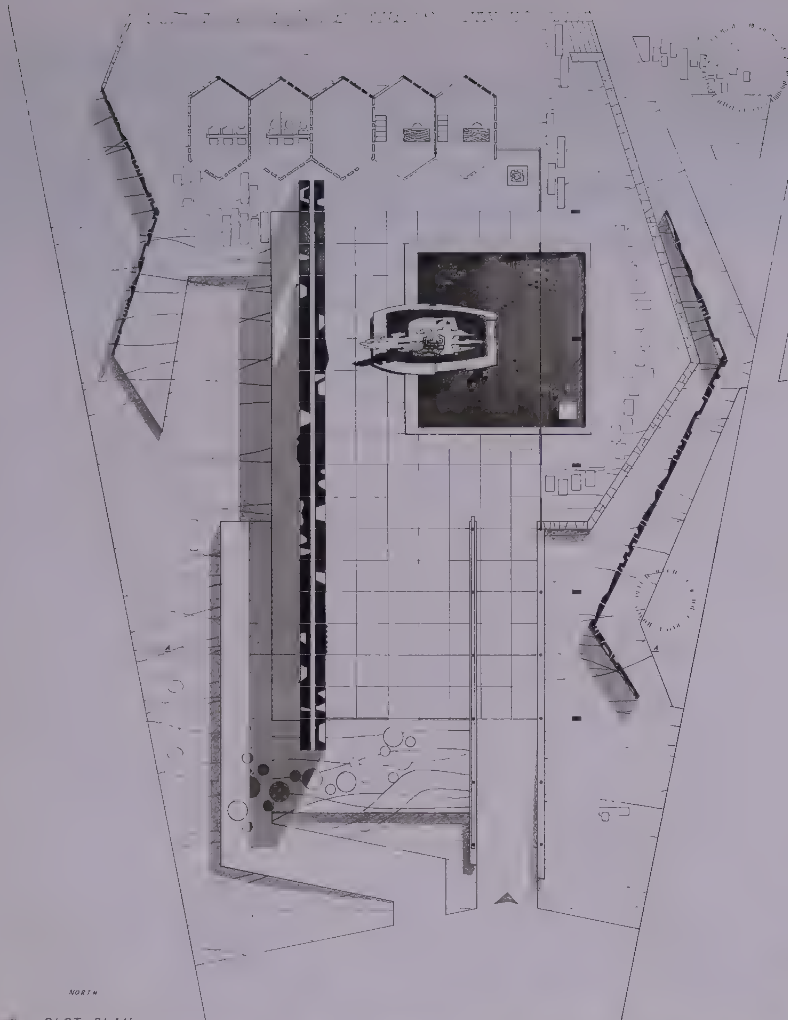
SPECIAL COMPETITION

1960-1961 PROGRAM COMPETITION
HUGH N. ROMNEY, Chairman

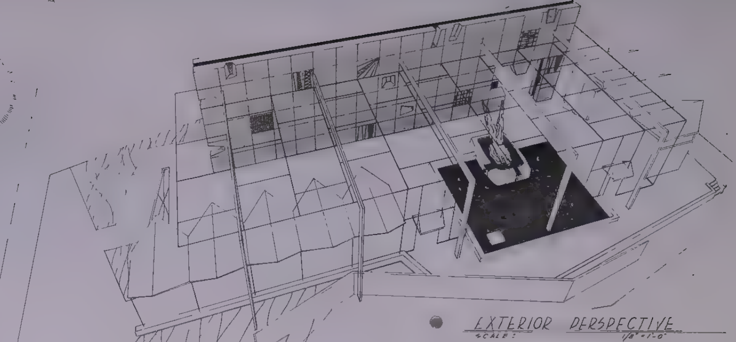
The purpose here is to compare some of the most successful programs for the study of design that have been written for architectural students in each grade in the past five years, either originating at the school or from the N I A E. It is also our hope that it will accent the importance of program writing to the students, to the professors, and ultimately to the profession.

JURY OF AWARD - June 5, 1961

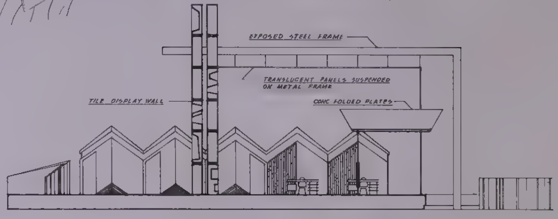
Hugh N. Romney
Giorgio Cavaglieri
Caleb Hornbostel
Joseph Judge
Sidney L. Katz
Gillet Lefferts, Jr.
Charles Rieger



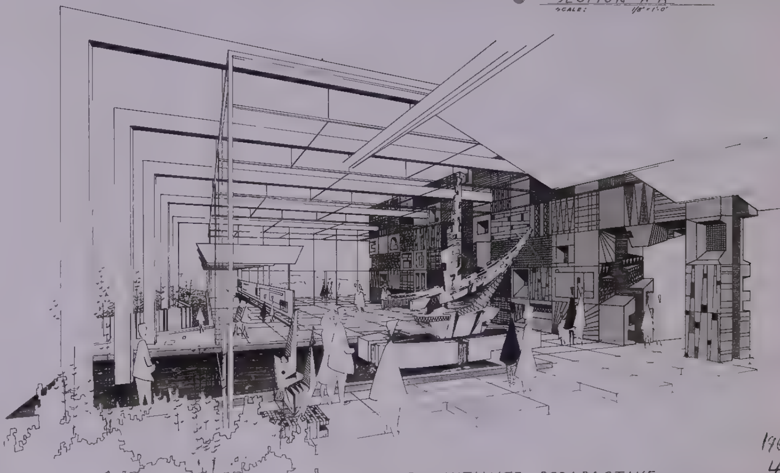
PLOT PLAN
SCALE: 1/8" = 1'-0"



EXTERIOR PERSPECTIVE
SCALE: 1/8" = 1'-0"



SECTION A-A
SCALE: 1/8" = 1'-0"

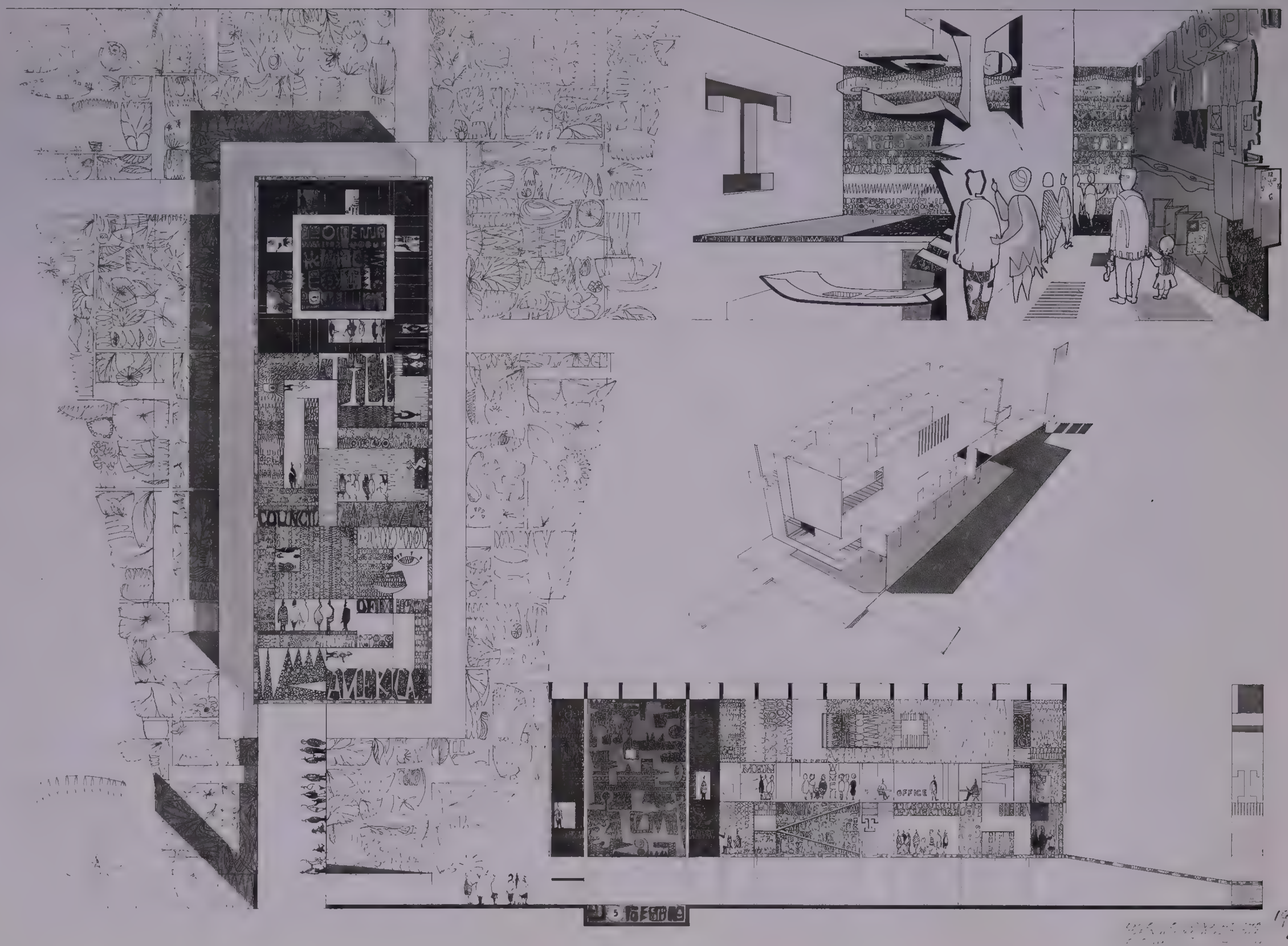


INTIMATE PERSPECTIVE

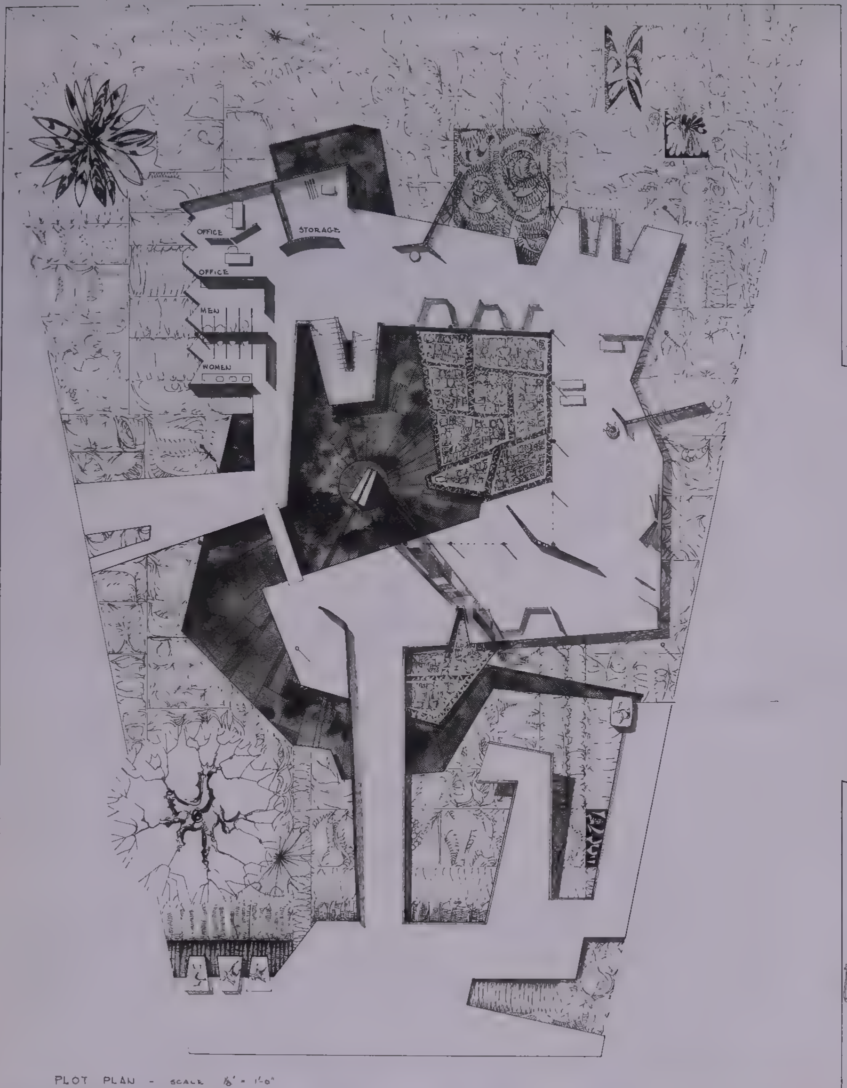
1960-61
43

exhibit building at the 1964 new york world's fair

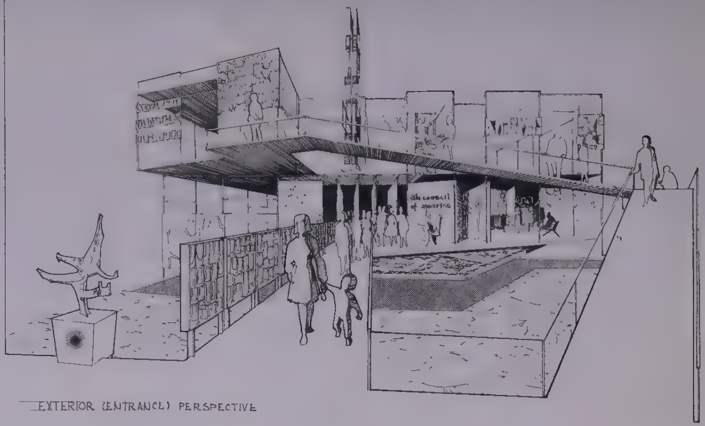
JAMIE W BRUZA
633 D BENNETT DRIVE
STILLWATER, OKLAHOMA
OKLAHOMA STATE
[illegible]
TILE COUNCIL OF AMERICA



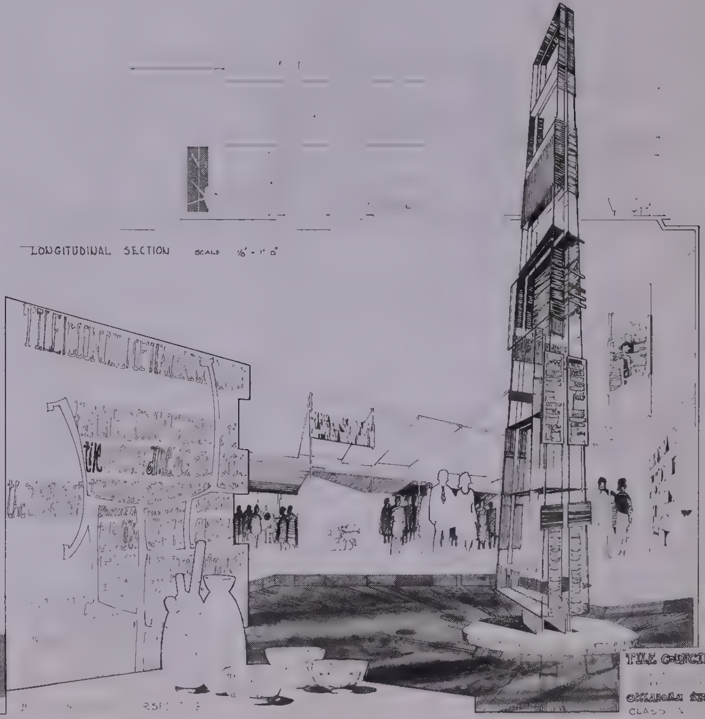
1960-61
44



PLOT PLAN - SCALE ⅛" = 1'-0"



EXTERIOR (ENTRANCE) PERSPECTIVE



LONGITUDINAL SECTION SCALE ⅛" = 1'-0"

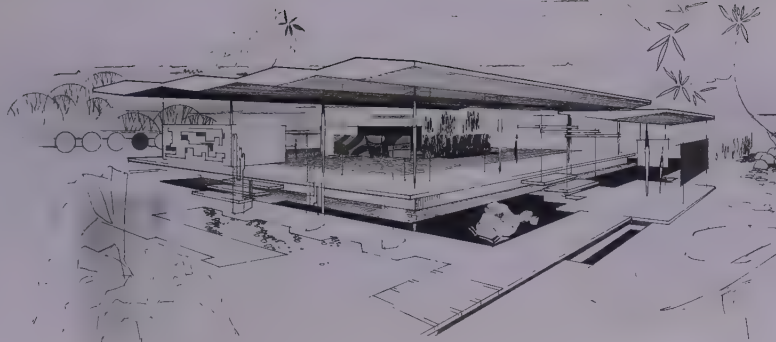
[illegible] PERSPECTIVE

exhibit building at the 1964 word's fair

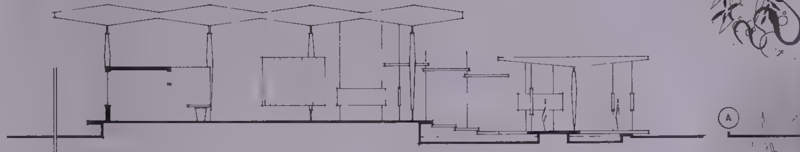
1960-61
45

TILE COUNCIL of AMERICA

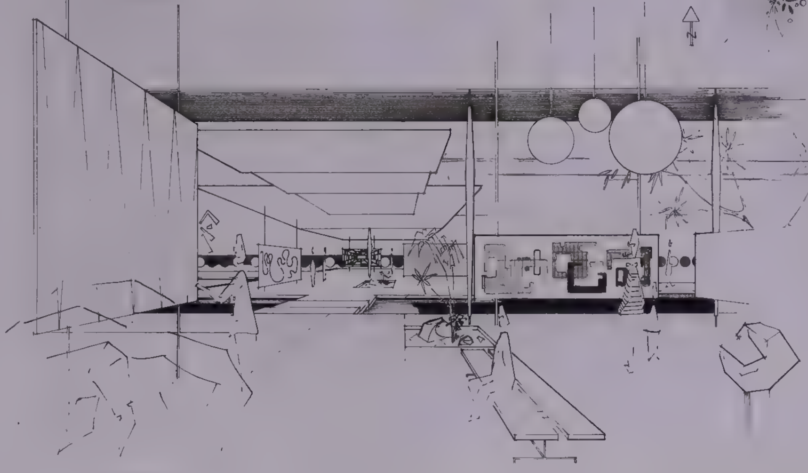
OKLAHOMA STATE UNIVERSITY
CLASS [illegible]



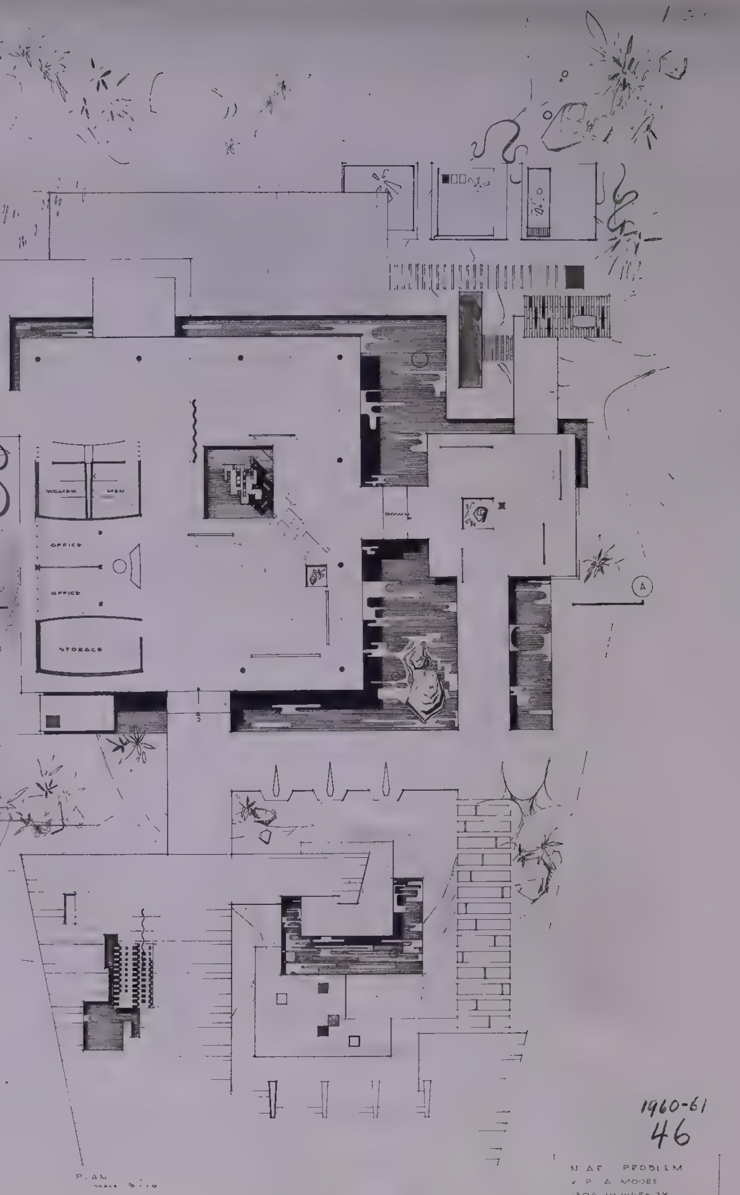
EXTERIOR PERSPECTIVE



SECTION A-A
SCALE 1/8" = 1'-0"



INTERIOR PERSPECTIVE



PLAN
SCALE 1/8" = 1'-0"

1960-61
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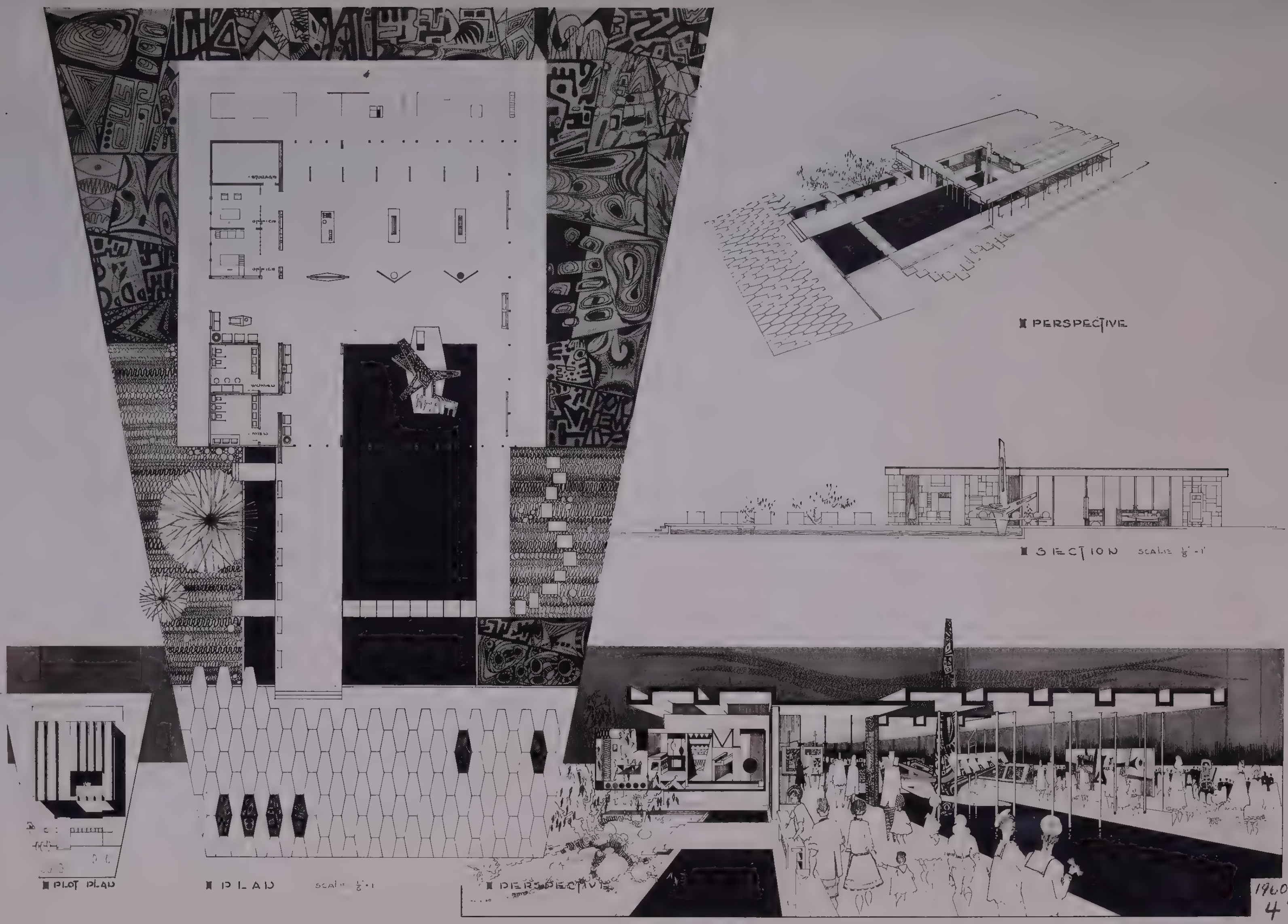
N.A.E. PROBLEM
K. P. A. MOORE
306 UNIVERSITY
STILLWATER OKLA
OKLA STATE UNIV



1960-61
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EXHIBIT BUILDING AT THE
1964 NEW YORK WORLD'S FAIR
J. FIRMAN CLASS A
OKLAHOMA STATE UNIVERSITY

PARTICIPANTS - 8 schools

A & M College of Texas
Carnegie Institute of Technology
Iowa State University
Montana State College
North Carolina State College
University of Houston
University of Nebraska
Washington State University

AWARDS

Assistant Professor Vernon F. Stone, Iowa State University:
Elementary Level - "An Architect's Office"
Advanced Level - "Temple Emanuel"

Assistant Professor Donald R. Heil, Washington State University, Pullman:
Intermediate Level - "A Study Cell for Advanced Scholars"

REPORT OF THE JURY
BY HUGH N. ROMNEY

A new attempt of furthering architectural education was made by initiating a competition for design programs prepared by the architectural schools in the United States for their design students. The purpose was to highlight the importance of writing a good program for the student as well as for the school and for the profession. The programs submitted were selected by the schools as the best programs they had issued in each grade in the past five years. Also photos of the winning solutions could be submitted if they felt these were helpful in judging the program by the results obtained.

The high quality of the programs submitted elicited much enthusiasm among the jurors. The adage "a picture tells a thousand words" in this instance worked in reverse and made the judging difficult. Each program was carefully graded on the following points: clarity, imagination, simplicity and directness, explicitness, timeliness and provocativeness. In addition they were also judged on whether they were written for the proper grade, descriptive qualities, and for editorial content and composition. It was not possible to determine the popularity of the program with the students, as the percentage of participants was not available.

This competition revealed that the secret of good program writing was the ability to present enough background material to enable students to proceed on an equal footing, to be inspired to further research without being overburdened with too much source material.

The introduction of the philosophy embracing a specific project gives a "raison d'etre" and the program becomes more meaningful. Reference to the philosophy behind the "Greats" in architecture leads to a clearer understanding of the architecture they evolved. Also, the program that carries the student through an exciting intellectual or cultural experience in design concepts, provokes deeper learning rather than imitating and developing cliches.

Elementary Level

The premiated program was "An Architect's Office" submitted by Iowa State University and prepared by Assistant Professor Vernon F. Stone.

This was a wonderful problem written in a very imaginative way that was stimulating to the students, not too rigid in its concept, but gave the students a very good picture of what an architect is and how an architect's office functions. It was explicit yet provocative, direct and timely. Others in this group were programs considered too complex or inclined to produce immature solutions. The winning program was very well written for this particular grade and clearly organized. As it was a six-week problem, the students had ample time to study the explicit requirements and therefore the numerous details were in order.

Intermediate Level

The premiated program was "A Study Cell for Advanced Scholars" submitted by Washington State University, prepared by Asst. Prof. Donald R. Heil.

Here was a program very well expressed with a good deal of original thinking in the writing of it. The requirements were detailed but the philosophy concerning each of the elements made it inspiring reading that would spur the students to extend themselves, which was the purpose of the program. This program was presented simply and directly, and offered each student an equal opportunity.

Other programs submitted were lacking in architectural concept, were too highly specialized, or presented an intellectual or cultural expereience that was not considered in a design category.

Advanced Level

The winning program was "Temple Emanuel" submitted by Iowa State University, prepared by Asst. Professor Vernon F. Stone.

This was an outstanding program with the history of the temple given as background, thereby making it possible to give this problem to any advanced design class regardless of its religion. This undoubtedly required a great deal of preparation and that type of detail study worthy of a thesis. The current growth in religious structures made this a timely program.

Washington State University is commended for a program for "An Elementary School", where the philosophy of building such a school was stimulating and inspiring.

"A Bus Terminal", "Remote Communities", and a "Water Purification Plant" was submitted by the University of Nebraska as a trilogy and is commended for this approach.

"A Theoretical Design Study" submitted by Carnegie Institute of Technology was another inspiring program with a great deal of philosophy of architecture to encourage learning.

We wish it were possible for all schools to have copies of these programs, as the members of the jury felt that each would gain by this effort to advance program planning for - a good program is the key to a better architectural education.

1961 THESIS AWARD
$1000 SUMMER FOREIGN TRAVEL FELLOWSHIP

JURY OF AWARD - June 21, 1961

George Beiers
George Bielich
J. Gordon Carr
Giorgio Cavaglieri
Joseph J. Caponnetto
Harvey P. Clarkson
Allen R. Congdon
Eustis Dearborn
Rene DeBlonay
Lathrop Douglass
Jose A. Fernandez
M. Milton Glass
Robert Allen Jacobs
J. Kellum Smith, Jr.
Seymour R. Joseph
Joseph Judge
Sidney L. Katz
Alexander Kouzmanoff
H. Dickson McKenna
John C. B. Moore
Eleanor Pepper
Patrick Raspante
Charles Rieger
Hugh N. Romney
George Cooper Rudolph
Benjamin Schlanger
Thorne Sherwood
Emanuel N. Turano
Caleb Hornbostel, Chairman

PARTICIPANTS - 19 entries

Carnegie Institute of Technology
Columbia University
Iowa State University
Massachusetts Institute of Technology
Pratt Institute
Princeton University
University of Cincinnati
University of Illinois
Virginia Polytechnic Institute

AWARDS

1961 Thesis Award - Summer Foreign Travel Fellowship - Hanno Weber, Princeton University
"A Portal to the U. S. A." - Circulation as Basic Structure.

Honorable Mention:
Placed 2nd - R. J. Reilly, Pratt Institute
"Sacred Heart Church, Newburgh, N. Y."
Placed 3rd - H. D. Betts, Princeton University
"Capital for the State of Hawaii"
Placed 4th - D. Highlands, Carnegie Inst. of Tech.
"A Place for the Remains of the Dead"

REPORT OF THE JURY
BY LATHROP DOUGLASS

On the evening of June 21, a jury of twenty-seven judged the nineteen entries for the 1961 Thesis Award the $1,000 Summer Foreign Travel Fellowship, NIAE.

To insure a thorough review and sound basis for judgment, the jury was subdivided into three separate juries, each of which was charged with special emphasis respectively on (a) design and planning, (b) structure, materials and practicality, and (c) adequacy and clarity of presentation.

All three juries were charged with marking on a 1 to 5 scale how well each project answered the questions: Is it good architecture? Would you hire the entrant? Is it structurally logical? Is it creative? Does it have a totality with its environment?

Each jury reviewed all nineteen submissions, so that each submission was reviewed three times.

In view of the fact that all but four of the submissions had individual programs and that some of the programs were complex running into many pages, the jury found their task to be very difficult as well as extremely interesting.

Generally speaking, the quality of the design was excellent and the manner of presentation astonishingly complete and well executed. Such vitally important characteristics as appropriateness and scale which in the past have been major targets of criticism by NIAE juries, were here on the average commendable. The principal adverse criticism that could be made would perhaps be best summarized by saying that possibly too many of the projects were lacking in imagination.

There was a tendency to be too prosaic. Most of the entries were practical, well worked out and admirably presented, especially in the use of excellent scale models. In general, they were intelligent, without the current cliches and forced structural forms that have marked so many of the entries in recent NIAE competitions. The thesis showed, literally an astonishing amount of work. But too many in the opinion of the jury, showed too little evidence of imagination.

After many hours of deliberation and review, a tally was taken of the scores. Four projects emerged as having substantially higher scores than the other fifteen. It was therefore decided to award three Honorable Mentions in addition to the prize and to make one last review, by the entire combined jury to select the prize winner and the order of the Honorable Mentions.

Although there were several entries in addition to the top four that deserved special consideration, it was felt that the premiated projects were sufficiently above the other entries to warrant limiting the mentions to four.

The 1961 Thesis Award was given to Hanno Weber of Princeton University. His project "A Portal to the U.S.A." This magnificently conceived and worked out thesis had as its underlying concept "Circulation as Basic Structure" and involved a new concept of handling ocean liners and their passengers, pedestrian and automobile traffic, and customs. The whole was worked into a dramatic addition to the New York waterfront and a fine piece of public relations for visitors to our shores. The scheme as evidenced by the superbly presented drawings, was workable, clear, logical and beautiful. There was shown even the method of lighting to provide drama at night. Despite the practical and engineering aspect of the program, the project showed true imagination.

The Second Honorable Mention given to the project by Robert J. Reilly, Pratt Institute, "Sacred Heart Church, Newburgh, N.Y.", was without question the most imaginative of the submissions and was thoroughly and beautifully worked out and presented. Although there was heated discussion as to the appropriateness of the form, the jury ended by heartily endorsing this entry for Honorable Mention, even those on the jury who had referred to the overall exterior appearance of the building complex as of some sort of "marine creature".

Despite this very unusual and fanciful concept of the edifice, the basic elements of the design and plan were intelligently thought out and carried through, and the rather bizarre structural concept appeared to be reasonable. The very sensitive quality of the presentation was backed up with a plasteline model.

Third Honorable Mention "Capital for the State of Hawaii" by H. D. Betts of Princeton University. The lack of plans and effective supporting material were somewhat of a handicap to this extremely imaginative and beautiful submission. In the opinion of the jury the two exceptionally beautiful models clearly indicated a sense of proportion and color, a fine design, a careful study and excellent basic planning for this project.

Fourth Honorable Mention "A Place for the Remains of the Dead" by D. Highlands of Carnegie Institute of Technology, was a very unusual, interesting and superbly presented submission, and was discussed at length by the jury. The extensive historical research and the imagination and fascination of its concept were carried out with skill and charm by means of one of the most spectacularly beautiful and complete series of ink renderings that the jury had ever seen. Perhaps because of the unusual subject matter or perhaps due to the method of presentation, there was a certain lack of clarity in the presentation which created unfavorable comment as the jury found it rather difficult to understand the full import of the various aspects of the design and plan.

CONTEMPORARY ARCHITECTURAL THOUGHT - A STUDY IN DIRECTION

BY DON B. MYER, Contributing Editor
University of Illinois

Pietro Belluschi, one of our leading contemporary architectural writers and thinkers, recently made the following statement in "Arts and Architecture" magazine: "From the very dawn of civilization, the search for symbolic expression has been in instinctive and universal urge of mankind; thus architecture has expressed the circumstances of its cultural and the social events of its time, a true mirror of human evolution. Our own age has witnessed deeper changes than in any previous age. The search for meaningful forms has been in context of swift scientific advances, of wars and social upheavals. Thus we have needed greater understanding and perhaps greater courage." Belluschi here brings up several points basic to any discussion of the direction of architectural thought. One is the relationship of architecture to its historical position. The other is the relation of architectural development to social evolution.

In discussing the historical relationships of architectural thought, we must consider an evolutionary process similar to the development of animal life or music. Throughout the past this process has created a series of plateaus which represent culminations of effort, and we must keep the entire historical picture in mind if we are to trace the movement of architectural thought to the present. The value of the historic perspective was indicated in the 15th century by Leone Battista Alberti, who said that a man must be inventive but he must not anticipate quick genius for the invention of everything he needs. He must also ask the wise and look to the past.

In regard to the historic, we find architectural opinion swinging wildly from one extreme to the other within our own century. At the turn of the century Richardson, Sullivan, Wright, Maybeck and the Greenes adapted themselves to their historic positions and developed organic, regional, prairie and skyscraper architecture which showed powerful concepts fitting the technology and the society of the times. Sullivan, who was fundamental in developing the new urban skyscraper, with his Wainwright Building and Chicago Auditorium, showed the development of forms appropriate to the new city functions. Architectural thought rejected much of this development (the 1893 Chicago Fair), which given the advancement of materials, might have saved the profession years of wandering. These new concepts were rejected in favor of stability through the revival of historic forms. These historic forms, though suited to their own epochs, were not adaptable to the needs of the day. We thus get the adaptation of Gothic details to the skyscraper in Chicago . . . The Tribune Tower. After this period had shown its failure, the profession rejected history. History had become a detriment to architectural thought, and the future was sought through severe utilitarianism. This blind abandon of the past was as big a mistake as had been its blind acceptance.

As we leave both of these periods behind, we must realize that history has much to show in the desires and delights of man. We are able to examine the mistakes of the past and to learn from them. We have centuries of research at our fingertips. This is fine and useful as long as we realize that the forms and joys of the past were appropriate to their ages, and though charming, are dead.

Perhaps after abandoning the small progress that was made at the beginning of our architectural age, swinging wildly to the imitative historic and then to the impractical anti-historic, we can level off and pick up the thread that was dropped off at the turn of the century. By realigning ourselves with the past we can then look on to the future and apply the tools of creativity, history, technology and society in the definition of our contemporary direction.

Our second major point is the relationship of architectural thought to social evolution. To do this and to give the results importance, we shall have to go to history as a tool to exemplify the relationship.

We can find both architecture and society in constant evolution, and can further find that they change together. If we look to the early 17th century Baroque in Rome, we find the effects of the Council of Trent with the Church undergoing a purification and definition period. The Vatican City, as a result of the Reformation and the decline of the Holy Roman Empire, was given much introspective attention as a seat of culture and religious heritage. In an attempt to return the heretic to the mother Church, an artistic movement to seduce by glamour and glory was instigated. A certain gentility, refinement and clarity were to replace the spontaneity and insecurity of the Manneristic Counter-Reformational days. These had been days of illogical and malnourished actions and architecture. This Baroque situation gave rise to the works of Borromini, Rainaldi, Cortona and Bernini which reflected the social changes of the period, and thus developed the dynamic, sensual, fleshy and bold architecture of the Baroque. This can be seen in the sculpture and the architecture of Bernini at the Vatican. From the dates of these works to the dates of the social changes we can find a precedence of social movement over architectural change by about 25 to 50 years.

The period of the French Revolution (1789) can be another example. We find the Rationalists and the Naturalists such as Voltaire and Rousseau leading an intellectual revolt which anticipated the political revolt. We also find two architects in particular, Ledoux and Boullee, anticipating the change. Social structure and architectural clientele changed radically with the revolution and architecture was ready to adapt itself to the new humanistic needs. In this case the actual social change and architectural change did somewhat coexist.

The late 19th century, in the United States, can be mentioned as a period of social change. There was the migration of the populace from a rural multiclass society, because of industrialization. Further change and impetus for the middle class came from such things as graduated income tax, women suffrage, abolition of slavery, and the formation of large labor unions. Most of the social changes occurred between 1860 and 1880, and were followed in a few years by an attempt at a new architecture.

We find that architectural change usually follows social change, or need. Architecture and architectural thought must adapt themselves to the changes in the clientele and program involved in social changes and variations. We can, by observing the the social changes in our contemporary world, predict many of the needs and changes that will be brought to pass in the near future. We can then predict the architectural adaptations to these new demands on the profession, and through these demands can find the direction of contemporary architectural thought.

A SEMINAR ON URBAN PLANNING AT SYRACUSE UNIVERSITY - SPRING 1961

REPORT BY GEORGE BEIERS

The seminar underlined two important aspects of urban planning; first, the awakening of public interest and second, the fact that the Federal Government is taking a more active interest in this field and providing much needed funds and impetus through state and local governments.

The seminar was well organized and knowledgeable speakers had been assembled who discussed the following topics:

1. The political aspects of preparing an urban plan and methods of dealing with these aspects.
2. The important difference between urban renewal and a comprehensive urban plan.
3. Government bodies and acts set up to assist and encourage urban planning and renewal.
4. The technical means of achieving an urban plan.
5. The method of registering urban planners.
6. Legal aspects of urban planning.

The Political Aspects of Preparing an Urban Plan and Methods of Dealing with those Aspects.

This is the greatest problem and one which needs the most careful handling. In many cases a so-called urban plan is prepared for political reasons. In these cases the plan is little more than a zoning ordinance which is changed at intervals to suit various pressure groups. In developing an urban plan the sincerity of the town involved must first be ascertained. Unless the plan is sincerely intended to be energetically carried through to a successful conclusion, it should not be considered and any urban planner careful of his reputation as a successful planner, is well advised to avoid work where this sincerity is not evident. The importance of such evidence of sincere will to carry out the plan is underlined by the Federal Government as grants are not made unless the town in question has shown by work carried out and money spent that they genuinely intend to carry out a worthwhile plan.

Once the planner has ascertained the genuine desire to have a town plan, it means that he has a number of important officials and citizens working for the success of such a plan. These officials and citizens should be carefully educated in the advantages and needs of the proposed plan. They then are in a position to overcome opposition which there almost invariably will be. Lectures gave examples of this technique in towns such as Buffalo, Memphis, Syracuse Rye, Massena, and others.

The Difference Between Urban Renewal and a Comprehensive Urban or Regional Plan.

One of the most common mistakes made is the manner in which the general public and even local government bodies confuse urban renewal for a comprehensive plan. Urban renewal merely means the renewal or rehabilitation of a comparatively limited area in a city or town which, if not tied into a comprehensive urban plan, can often do more harm than good. A comprehensive urban plan is one which covers the entire city or town including the outskirts and makes plans for development of transportation, land use, utilities, economy, cultural institutions, parks and recreation area.

Government Bodies and Acts Set Up to Assist and Encourage Urban Planning and Renewal.

The most important act is the Federal Urban Planning Assistance Program as amended by the Housing Act of 1959. Its function is:

1. To help state and local governments solve planning problems resulting from rapid and uncontrolled population growth in urban areas.
2. To facilitate comprehensive planning for urban development by state and local governments on a continuing basis.
3. To encourage state and local governments to establish and develop planning staffs.

This act is administered by the states similar to the manner of the Hill-Burton Act. Program 701 of 1953 is of valuable assistance to smaller communities.

Various highway development acts are also helpful. At the moment there is some antagonism between highway and urban development but this is due to lack of comprehensive planning.

The Housing and Home Finance Agency has issued a number of useful publications on urban planning, housing, and urban renewal.

New York State Bureau of Planning under Director Charles L. Crangle is an energetic and well organized body set up to administer urban planning in N. Y. state.

The Technical Means of Achieving an Urban Plan.

The basic steps for an urban plan (not renewal) are:

a. The setting up of a strong political body capable of seeing the plan through to success.

b. Analytical studies:

i. Investigation of what the town or city wants to make of their future development.

ii. After (i) is decided it is possible to proceed with studies of land use, economic basis, population, streets, highways and traffic circulation, transportation public and private, central business district, sociological requirements, recreation, community facilities, utilities and industrial development.

iii. From exhaustive studies of the above zoning, circulation and general development, plans can be produced.

iv. Civic center and downtown redeveloping plan.

v. Housing.

The information for all the above is usually available from: Census Bureau; Department and local Board of Commerce; Highways Department; Local City Council; Department of Agriculture.

No planner should attempt to make all the above studies himself. Special consultants are employed, their number depending on the size of the town. Special consultants include economists, highway planners, architects, engineers, public utility planners, school planners, and landscape architects.

An important point to remember is that while the plan is being developed, which is usually a period of three to ten years, the plan should be adjusted for any changes in development of the city. What is even more important is that the people of the city be made aware of the advantages to be gained from a good comprehensive plan, such advantages are better traffic circulation, a downtown area to be proud of and enjoyed, the financial gain from land improvements (higher tax returns), more efficient public transportation, etc. It is important to note that expenditures should be justified by the returns, economic, aesthetic or sociological.

Method of Registration of Urban Planners.

No method has yet been adopted, but New York State will only approve, for State aided programs, planners who have had eight years experience. Details are laid down in a brochure issued by the New York Bureau of Planning. The requirements seem a little stringent and give little credit to organizations with experience in large scale planning. Other states have not yet laid down such definite regulations. However, it does appear planners are attempting to exclude architects from the field which historically has been theirs.

Legal Aspects.
The best laid plans of mice and men can come to nothing if not thought out thoroughly and no one can help better than a good lawyer. A good lawyer should be brought in early so that he can understand the objective, advise on legal limitations and, at completion, write the laws and orginances in such a way that all the hard work and money spent on the project is not wasted.

FROM THE REPORT OF THE 47th PARIS PRIZE SCHOLAR, LLOYD GUY WALTER

1960 Lloyd Warren Fellowship

I spent several days in Switzerland enjoying Lucerne and Zurich, as much for their natural surroundings as for their inherent beauty, for both cities are very pleasant. Lucerne is a little quiet but with some pleasant areas in the old section of town, especially the two timber bridges across the river, and the cathedral is quite nice. Also in Lucerne is a very interesting automotive exhibit (actually on all phases of transportation) in a new structure. The exhibit itself is very good although the buildings which house them are not particularly exciting.

Zurich was rich in life, and a pleasant city with plenty of jazz music. The Grössmunster is a pleasant structure which dominates the river and entrance to lake. All along the lake front are pleasant park areas, really a typical thing here in Europe. Each time I study a city plan I realize how much green is brought into a city here, compared with our cities, and I think we are very far behind. But people here enjoy a walk - a simple thing, but the walk in a nice park is part of life here. Many reasons may lie behind that but nevertheless it is true. We Americans are too prone to ride in the auto or stay in air-conditioned buildings, but that is because we have these conveniences - or is it because our parks are bad, badly kept or exist?

Architecturally I have seen some very interesting cities and building in Germany, but not in the abundance or the quality that Italy has. The Romanesque cathedral in Speyer was very impressive - a very powerful mass. The interior was being repaired, therefore my reaction to that cannot hold true. My guess is that it would have been very rich. In Worms I visited another Romanesque cathedral, very severe and forboding from the exterior but quite beautiful on the interior. A very high space with excellent lighting from the windows.

We visited Heidelberg rather hurriedly, but it is a pleasant town with quite a bit of character in some sections. From the castle, is an excellent view of the city, with the river cutting its way through. All of the Germanic towns have such different character from the towns I have been used to in Italy. The roofs with high pitch and walls of timber and stucco. Personally, these form a much richer profile in most instances for my taste - but there is a better reason still for this type of construction in Germany - materials available and weather.

Würzberg is a pleasant city, again on a river and dominated by a high fortress dating from the 13th century, similar in character to Heidelberg. Here a Baroque chapel on a hill opposite the fort has an interesting approach handled by levels, about six, leading up to the entrance level, but each level has a very well defined space of pleasing size and offering a changing perspective of the chapel as you approach, or of the city as you leave.

Rothenberg, a walled city, is still intact on a very rich site. Several buildings within the walls were interesting, the most unusual to me being a "Renaissance" structure - the Rathaus. Stairs were strongly expressed in this building and several others.

Nürnberg and Munich contained a great deal of Gothic work - some of the so-called "hall" churches. The Lorenzkirche and St. Sebald's in Nürnberg were very pleasant from both the internal and external aspect, but I feel the Cathedral in Vienna must take honors - St. Peter's Church. The relationship of tower to nave is pleasant and dynamic, and the vaulting and column spacing in relation to wall and fenestration is quite rich. While the height-width relation is somewhat equal and the feeling vertically is not as strong here as in some of the French and English Gothic works, still there is a richness and quality I enjoyed.

Vienna is a very beautiful city but really one of contrasts. Some areas are really beautiful with rich shops, powerful buildings and fine parks, while other areas (and quite large ones) are so completely impersonal, even sinister in character, as to make you feel you have suddenly entered another city by mistake. The new Rathaus (a Gothic revival building), Burg Palace and the Opera and Shonbrun Palace represented a strange array of styles and masses, all large and different, which might really characterize Vienna. The grounds at Shonbrun Palace were very nice. In size they might compare with Pitti Palace and grounds in Florence, but in quality, cannot quite come up to par with Pitti. We went out to the Danube and watched the sailboats one afternoon, and I wondered why the city had grown away from the river so far. In all of the cities I have visited, water was evidently a prerequisite at founding time and nearly all had retained that character of a city built on a river and divided by it, but not Vienna.

Elementary Spring Term Problem 1960-61

OSWALD HOEPFNER MEMORIAL PRIZE

The funds for this prize have been made available by friends who made donations in his memory.

The Prize is $100.

A SCULPTURAL CLIMBER FOR A CHILDREN'S ZOO

Competition Regulations

Design solution must be completed in any ten (10) consecutive days between January 9, 1961 and April 23, 1961.

Contestant must qualify for the grade of work for which he submits an entry.

An entry fee of $2.50 is required for each design entered for judging. This fee must be received on or before the date the entries are due at the Institute office.

Each entry shall represent the work of only one student; and only one solution to a problem may be submitted by any one student.

Entries must be identified in a space 2" x 4" in the lower right-hand corner on the face of each sheet by printing legibly: a) full name and address of competitor; b) name of school, atelier, or supervisor; c) grade and title of the competition. A space 8" x 10" for jury comments, if desired, may be provided in the upper right-hand corner.

All parts of any entry must be uniform in size not exceeding 30" x 40"; technique or presentation is optional unless otherwise called for in a program.

All plans to be similarly oriented.

Entries must be sent prepaid upon completion. They will be returned collect.

Notice of shipment shall be mailed to the NIAE giving date and express receipt number (if any); in duplicate on a separate list for each problem, an alphabetical listing of the names of entrants with the number of pieces comprising each entry. (The duplicate list will be returned with notation of outcome immediately following the judging.)

Announcement of awards will be made promptly after each judgment. Complete report of judgment together with photographs of premiated designs will be published in the BULLETIN of the NIAE, as soon after the judgment as the material can be prepared. BULLETIN subscription rate is $25 for the school year with photographs (approximately 100 prints); without photographs the rate is $2. Photographs or reports of current problems may be purchased singly at $1 per report or print.

Additional copies of program may be purchased at $1 for a single copy; $8 for 10 copies; $20 for 30 copies.

Address all correspondence and shipments to National Institute for Architectural Education, 115 East 40th Street, New York 16, N. Y.

Circular of information for 1960-1961 will be mailed on request.

A SCULPTURAL CLIMBER FOR A CHILDREN'S ZOO

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The Prize is $100.

The Public Park Commission in St. Louis is planning a new children's zoo and as one of the attractions in this area where children can come in close contact with domestic and wild animals, a special feature is to be included. It is to be a circular grass-covered fenced enclosure having a radius of 50 feet, within which is to be an architectural sculptural form or forms upon which baby goats can climb for the entertainment of the children. The maximum height of any part of the form or forms shall not exceed 16 feet.

The Park Commission has ruled that at no time will children be allowed into this enclosure, but Zoo personnel will at certain hours bring several of the baby goats out so that the children can handle them.

The problem is to design this architectural form or forms, embodying a sculptural quality.

REQUIRED:

Presentation on one board 20″ x 30″.

Plan at the scale of ⅛″ to the foot.

Section through the form or forms at ⅛″ scale.

Perspective at as large a scale as possible.

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Intermediate Problem Spring Term 1960-1961

HIRONS ALUMNI PRIZE

Atelier Hirons Alumni established this award to commemorate the training and spirit of "camaraderie" instilled by their patron and teacher Frederick C. Hirons.

To encourage international participation the funds will be subdivided into two prizes:

$100 will be awarded entries from Canada and Mexico,
$100 will be awarded entries from United States.

A CONCEPTORIUM FOR THE ALLIED ARTS

Competition Regulations

Design solution must be completed in any ten (10) consecutive days between January 9, 1961 and May 15, 1961.

Contestant must qualify for the grade of work for which he submits an entry.

An entry fee of $2.50 is required for each design entered for judging. This fee must be received on or before the date the entries are due at the Institute office.

Each entry shall represent the work of only one student; and only one solution to a problem may be submitted by any one student.

Entries must be identified in a space 2″ x 4″ in the lower right-hand corner on the face of each sheet by printing legibly: a) full name and address of competitor; b) name of school, atelier, or supervisor; c) grade and title of the competition. A space 8″ x 10″ for jury comments, if desired, may be provided in the upper right-hand corner.

All parts of any entry must be uniform in size not exceeding 30″ x 40″; technique or presentation is optional unless otherwise called for in a program.

All plans to be similarly oriented.

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Announcement of awards will be made promptly after each judgment. Complete report of judgment together with photographs of premiated designs will be published in the BULLETIN of the NIAE, as soon after the judgment as the material can be prepared. BULLETIN subscription rate is $25 for the school year with photographs (approximately 100 prints); without photographs the rate is $2. Photographs or reports of current problems may be purchased singly at $1 per report or print.

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Circular of information for 1960-1961 will be mailed on request.

Advanced Problem Spring Term 1960-1961

THREE - DAY WEEKEND EXERCISE

UNITED STATES PAVILION AT THE NEW YORK WORLD'S FAIR 1964

"TEST-RUN" COMPETITION FOR 1962 LLOYD WARREN FELLOWSHIP

Two Scholarships each of $500 will be awarded on this problem in addition to the regular awards, but the Scholarships will be awarded only to those contestants who can meet the conditions of the Lloyd Warren Fellowship other than a degree, because the winners will be admitted to the Final Competition for the 1962 Lloyd Warren Fellowship.

The most interesting areas in a World's Fair are those devoted to the pavilions of the nations of the world, where various cultures, standards of living and overall way of life may be compared.

The key pavilion is that of the Host, the United States of America. This pavilion, which should express the ideals and spirit of our country, will be set in a beautifully landscaped plaza 900 feet long and 600 feet wide. It will house the following exhibits:

1) Our Industrial Might
2) U.S.A. Fine Arts
3) Science and Space
4) Production and our Standard of Living: (a) Food (b) Clothing (c) Shelter and its amenities
5) Music
6) Theater
7) Cinema
8) Historical Background
9) Government
10) Natural Resources
11) Planning and Building
12) Health, Education, Welfare
13) Farming
14) Labor
15) Transportation
16) Communication
17) Recreation

In addition to the exhibits listed above, include reception facilities, three types of restaurants, each seating 300 people and each serving a different price menu; four auditoriums for music, theater, cinema and TV.

In order to develop the most comprehensive and understandable solution, the designer may combine any related elements to give the best and most cohesive result.

The entire exhibit cannot exceed 300,000 sq. ft. and no one floor can exceed 100,000 sq. ft. in area. The building will be used by the Fair for two years. There will be only one main entrance to the building. Ample exits are to be provided along with necessary service facilities; toilets, receiving dock, administration facilities, cataloguing and storage areas.

Treatment of the area beyond the plaza may be disregarded.

REQUIRED:

1. Exterior perspective in color at as large a scale as possible.

2. Site plan of entire plaza, floor plans and section at 1/32″ scale.

Presentation on one 30″ x 40″ board or two 20″ x 30″ boards.

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Special Competition — Spring 1961
For Intermediate and Advanced Design Students

COMMITTEE OF STAINLESS STEEL PRODUCERS
AMERICAN IRON AND STEEL INSTITUTE

Prizes $800, $600, $400

A REPETITIVE REFRESHMENT STAND FOR THE WORLD'S FAIR GROUNDS

Design solution must be completed in any ten (10) consecutive days between January 9, 1961 and April 23, 1961.

Contestant must qualify for the grade of work for which he submits an entry.

An entry fee of $2.50 is required for each design entered for judging. This fee must be received on or before the date the entries are due at the Institute office.

Each entry shall represent the work of only one student; and only one solution to a problem may be submitted by any one student.

Entries must be identified in a space 2″ x 4″ in the lower right-hand corner on the face of each sheet by printing legibly: a) full name and address of competitor; b) name of school, atelier, or supervisor; c) grade and title of the competition. A space 8″ x 10″ for jury comments, if desired, may be provided in the upper right-hand corner.

All parts of any entry must be uniform in size not exceeding 30″ x 40″; technique or presentation is optional unless otherwise called for in a program.

All plans to be similarly oriented.

Entries must be sent prepaid upon completion. They will be returned collect.

Notice of shipment shall be mailed to the NIAE giving date and express receipt number (if any); in duplicate on a separate list for each problem, an alphabetical listing of the names of entrants with the number of pieces comprising each entry. (The duplicate list will be returned with notation of outcome immediately following the judging.)

Announcement of awards will be made promptly after each judgment. Complete report of judgment together with photographs of premiated designs will be published in the BULLETIN of the NIAE, as soon after the judgment as the material can be prepared. BULLETIN subscription rate is $25 for the school year with photographs (approximately 100 prints); without photographs the rate is $2. Photographs or reports of current problems may be purchased singly at $1 per report or print.

Additional copies of program may be purchased at $1 for a single copy; $8 for 10 copies; $20 for 30 copies.

Address all correspondence and shipments to National Institute for Architectural Education, 115 East 40th Street, New York 16, N. Y.

Circular of information for 1960-1961 will be mailed on request.

A REPETITIVE REFRESHMENT STAND FOR THE WORLD'S FAIR GROUNDS

COMMITTEE OF STAINLESS STEEL PRODUCERS

American Iron and Steel Institute

Sponsors of the following prizes $800, $600, $400
for Intermediate and Advanced Design Students

The Bureau of International Expositions in Paris has approved the 1964 World's Fair to be held in New York City. The Exposition will be located on the Flushing Meadow site of the 1939-40 World's Fair. The Theme is "Peace Through Understanding." The Exposition's Executive Committee has appointed a Board of Design which will plan the exposition's physical concept and set aesthetic standards to be followed by all exhibitors.

For the purpose of this problem we may assume that a single, well established restaurant chain has been given the concession for all refreshment stands for the 1964 World's Fair in New York. You have been asked to prepare studies to present your idea for this refreshment stand.

The Board of Design for the Fair has established the following criteria: The structure shall be designed for an easily identified repetitive refreshment stand for the dispensing of snacks. The stands are to be unitized, modular, and demountable as they will be used throughout the state of New York by the Department of Highways and Parks after the Fair. The lettering for any sign or signs cannot be larger than twelve (12) inches in height. Because of the anticipated high traffic density the materials used should be of a type which will withstand both severe usage (and even abuse) and abrasion. Material of construction also must be suitable for quick, simple, low-cost cleaning for sanitation and appearance.

The Board of Design emphasizes that the Fair is international in scope and that the design of the refreshment stand must be equally exciting and inviting whether located adjacent to the transportation center, to the special exhibit or individual pavilions or whether in amongst the amusement attractions.

The refreshment stand must provide for the preparation and dispensing of hot dogs, hamburgers, hot and cold drinks which are not to be eaten at the counter. The adjacent area with provision for eating is not part of this problem. The stand must accommodate storage facilities for supplies and trash collection. No part of the building or its area shall exceed 400 sq. ft.

REQUIRED:

Presentation on one 30″ x 40″ board or two 20″ x 30″ boards.

1. Plan and section at ½″ scale showing structure, food preparation and dispensing.
2. Principal elevation at ½″ scale.
3. Exterior perspective in color at as large a scale as possible to best explain the concept.

STAINLESS STEEL FINISHES IN ARCHITECTURE

Richard E. Paret, Secretary
Committee of Stainless Steel Producers

American Iron and Steel Institute
150 East Forty-Second Street
New York 17, N. Y.

STAINLESS STEEL FINISHES IN ARCHITECTURE

Increasing sophistication in the use of architectural metals, added to the natural - and essential - desire for improvement or at least change - leads inevitably to demands for new, interesting textures, colors, and finishes. The stainless steels can supply virtually any variation or finish specified to date.

As in the case of most metals, the architectural finishes available in the stainless steels can be divided between the standard mill finishes, and the special mill or "semi-fabricated" finishes.

Standard Finishes

There are eight standard finishes produced by stainless steel mills. These give tone and varying reflectivity ranging from a matte grey to an almost mirror-like bright. Fortunately for you who write architectural specifications, there are only three that architects must know about:

No. 2D Finish
No. 2B Finish
No. 4 Finish

2D Finish

No. 2D finish is a dull cold rolled finish that has found much favor in exterior metal panel construction. Examples of the use of 2D finish are the three Gateway Center Buildings in Pittsburgh and the Socony Mobil Building in New York.

We believe the dull cold rolled finish used on these buildings is ideal for metal curtain wall panels because there is a minimum of reflected image or reflected sunlight, the color is uniform, the surface is the best possible for fabrication of any design patterns desired.

2B Finish

Number 2B finish is a bright cold rolled finish that finds use for accent detail, mullions, fascia, trim and the like. It is also the finish generally chosen for standard roll formed stainless steel window sections. This finish generally should not be used for column covers, doors, frames, elevators, kick plates and similar heavy duty areas.

Because alloy composition has a significant effect on 2B finish of stainless steels, a brief comment on stainless steel alloys commonly used for architecture is in order. Most architectural work is done with chromium-nickel stainless steels of types known generally as "18-8". Types 302 and 316 are typical. In addition, type 430, a grade containing chromium (which is the essential element for corrosion resistance) but no nickel, has use particularly in interior or maintained exterior areas. These two varieties of stainless steel develop different surface appearances upon bright cold rolling at the mill.

Type 430 with a 2B finish is almost mirrorlike, requiring only the minimum buffing, if any at all, for highest reflectivity. It is an ideal finish for roll formed sections in areas where type 430 stainless steel is suitable.

Type 302 will require additional buffing to achieve the same degree of brightness when starting with a 2B mill finish. Even with type 302, however, buffing will not be necessary unless a very high lustre is desired.

No. 4 Finish

Another basic finish of significance for architectural applications is No. 4 polish. This is the long-established standard polished finish that architects specify for building entrances, marquees, elevator doors, column covers, and many other uses calling for "dress-up" effects.

We do not normally recommend the use of No. 4 finish for metal curtain wall panels because of light reflecting characteristics. No. 4 is eminently suitable for trim, mullions, and any other small areas calling for contrast. No. 4 finish has, however, been used for spandrals where a texture has been imparted to the material to minimize large reflective areas.

Special Finishes

Special finishes are used on all sheet metal applications as one control to a common problem - optical distortion. It is assumed for this discussion that optical distortion of a panel or other large area is caused by expansion and contraction of the metal during thermal changes. This is not uniquely a problem with stainless steel. The same problem exists with aluminum, copper, glass and any other reflective material. But the control of distortion may possibly be more critical with stainless steel because it maintains its original reflectivity over a long period of time.

The best control of optical distortion, which is most obvious in large flat areas, is through the elimination or minimization of the flat areas. There are many methods of doing this which have been tried in practice and proved to work.

1. The Heppenstahl Building in Pittsburgh is completely faced with solid, unbroken wall of stainless steel and in that particular case, a series of slightly concave panels were used.

2. Some of the manufacturers of standard curtain walls such as Mahon, Robertson and the like used fluted panels.

3. The Socony Mobil Building is typical of die pressed panel in which the metal was caused to flow properly to stiffen the panels.

4. The Columbus and Southern Ohio Power Building in Columbus, Ohio, has an overall rolled-in texture pattern.

5. The Mellon Building in Pittsburgh has an overall, rather small textured type of pressed panel.

These are various techniques, all designed with forethought and executed with skill to control and minimize flat areas. These same principles can be applied to a column cover as well as a wall area.

Special finishes also may be used to develop the originality in appearance you have rightly demanded - and if the proper ones are selected they can be obtained with reasonable economy.

These special finishes can be divided between those obtained through mechanical working and through application of color.

Mechanically Obtained Finishes

Surface finish - or appearance - can be altered by forming either in brake or die to break up reflections, give texture, break monotony or develop originality. For smaller jobs brake forming often is best from a cost standpoint. Stainless steel is strong - dies such as used for forming Socony Mobil panels are expensive and only justified when quantitites of duplicate units warrant a sizeable investment.

But there are readily available "semi-fabricated" textured stainless steel sheet and strip products which can be worked into standard details. One such textured stainless steel product results from sheet and strip worked between mating rolls to develop three dimensional textures which have two important benefits - first an interesting appearance and second a high degree of stiffness when "deep" patterns are used. Use of such textured material permits reduction in gage without loss of stiffness or possibility of optical distortion.

When lesser areas, or better back-up is involved, the three dimensional texturing may not be essential. For such applications an embossed or coined surface may be all that is required for appearance or reflectivity control. Many patterns of this type - in varying degrees of boldness - are available from mills.

A bonus benefit from either type of overall mechanical surface treatment, is control of "finger printing" on stainless steel used in traffic areas, particularly for doors, push and pull plates and bars and similar applications. Since no lacquer, wax or other surface protection is needed on stainless steels, the use of a textured surface will not increase practical maintenance costs and may well reduce them.

Color

A recent innovation is the production of stainless steel sheets colored with an acrylic coating. Two new buildings have employed this color system. Just completed is the American Society for Metals Building near Cleveland, on which a soft gold finish is used on one side of the stainless steel sunshade of this ultra-modern structure.

On Gateway Building No. 4, now under construction in Pittsburgh, a charcoal gray color on Type 302 stainless panels will offset and accent the No. 4 Polish also used.

These colors are designed for outdoor exposure. It is reported by the producer that the thermo-setting acrylic coating fabricates well and can be drawn, bent, or roll-formed into any shape. Eleven colors currently are available and the coating system permits easy field repair should damage occur during erection of panels.

Another coloring method for stainless in limited usage involves a simple chemical process that applies a black oxide finish which contrasts well either

with the natural silver gray of a cold rolled stainless finish or with No. 4 Polish.

Color can be applied to stainless steel through the use of porcelain enamel. This provides perhaps the most durable color on stainless steel. Only one coat of porcelain enamel is required and the steel need be coated only on one side.

Stainless steel has one additional quality in the application of color - it can be colored chemically, or with acrylic or porcelain enamel over only part of the surface without fear of peeling or flaking through corrosion under the coating.

When applied only to parts of textured or formed sheets or in stripes, patterns, or splatters to flat sheets, the brilliant hues of a color coating stand out in vivid contrast to the metallic silver luster of stainless steels. Dramatic and novel designs can be created by utilizing the full range of shades and hues and the wide range of textures and formed shapes possible with stainless steel.

R. E. PARET

BASIC INFORMATION

Properties of Stainless Steels

Of the almost one hundred stainless steels made to meet a multitude of engineering applications, some thirty-seven are made in sufficient quantity and for a sufficient variety of applications that they are considered by the industry to be standard. Of these, an architect or architectural specification writer need concern himself with only four or five. And, indeed, one grade serves virtually universally. As a family, these steels possess physical and mechanical properties sufficiently superior to those of other common engineering materials that these properties should be taken into account for optimum efficiency and economy. They have their own design criteria, as will be described.

Type 302 stainless steel, containing approximately 18 percent chromium and 8 percent nickel - the famous 18-8 - can be considered the all-purpose stainless grade. Type 304, which sometimes appears in specifications, is a close relative - virtually the same as a result of recent improvements in steelmaking technology. This grade is easy to form and fabricate. Weldments are strong, tough and corrosion resistant, and blend with parent metal when ground and polished. Having excellent resistance to corrosion on exposure to weather, it is the grade which has normally been used for exterior architectural applications.

Type 316 stainless steel is a modification of Type 302 to which molybdenum has been added to increase corrosion resistance. This extra alloying is not required other than for extremely exposed sea-coast applications or infrequent industrial atmospheres where corrosive chemical fumes are exceptionally severe. In such applications, savings in maintenance - or increased service life - warrant the extra alloying.

Type 430 stainless steel is the type containing no nickel which most nearly resembles Type 302 in fabrication and service. This grade does not have quite the corrosion resistance of Type 302. Nonetheless, it has suitable resistance to weathering and atmospheric corrosion for mild industrial and urban conditions. Extra care may be required to maintain its appearance throughout years of service. However, major architectural work has been done with the grade and it is particularly useful in store fronts and entrances which are well maintained. Type 430 stainless is satisfactory for practically all interior applications.

Types 301, 201 and 202 stainless steels are higher strength grades that find principal use for structural elements. Each of these grades develops mechanical properties higher than those developed by Type 302 during cold working. Roof drainage, window and door sections, ceiling systems and other applications which benefit particularly from high strength-weight ratios often utilize these grades.

Valuable Mechanical Characteristics

As a structural material, stainless steels are superior to all other architectural metals. With tensile strengths of about 90,000 psi for Type 302 in the annealed condition, stainless steels often are used with tensile strengths up to 120,000 psi. Possessing a modulus of elasticity of 29,000,000 the stainless steels can be used in thinner gages than other metals - and must be for optimum economy. In addition, their excellent resistance to corrosion means that no allowance need be made for possible reduction of thickness due to corrosion.

The hard dense surface of stainless steels resists scratching and gouging better than other ferrous or nonferrous metals. Again, this

means that there is no need for extra material as a factor of safety. The coefficient of thermal expansion of the stainless steels compares favorably with that of glass and other commonly used architectural materials.

Available in All Forms

Stainless steels are produced in virtually all commercial forms and sizes in which other metals are available, and in a range of sizes to meet economically most design requirements.

Stainless steel bars and wire are not only produced in a wide range of sizes in standard shapes - round, square, hexagonal and the like - but in many special shapes as well. With tensile strengths of 75,000 to 125,000 psi or higher if required, depending on grade and condition, structural function can be incorporated with decorative beauty in floating stairways, grills and guards, hardware and similar applications.

Stainless steels are produced in the form of tubing, both welded and seamless. Welded tubing is made up to 30" diameter, seamless to over 8" diameter. Tubes are made round, square, rectangular and in a variety of less common shapes, many of which have lent themselves to architectural adoption with spectacular results.

The basic efficiency of tubular shapes, coupled with the high mechanical properties of the stainless steels, leads to light, efficient designs in railings, dividers, shelving. Tubing provides strength and stiffness without bulk for window and door components, mullions and exposed supports. As a result of booming interest in stainless steel tubing for construction components, most architectural product supply houses now stock special sections as well as standard rounds in a variety of sizes.

Sheets and strip are, of course, the products most often formed into architectural components. These products are available in practical architectural thicknesses from .010" (or as low as .001" for special applications - weather stripping, for example, at .005") to 3/16". Heavier plate material also is available, though usually confined to full load-bearing structural members.

Sheet dimensions are normally controlled by fabricator tooling size or component shipment and erection size, rather than by mill product availability. In general, these are the same restrictions which apply to all architectural metals.

Wide Variety of Finishes Available

The durable surface of stainless steel can be finished to meet virtually any architectural requirement. And the finish can be expected to give decades of service with little or no maintenance except as might be desired on occasion for esthetic purposes.

A variety of standard finishes obtainable from stainless steel producers vary from non-reflective to a highly specular almost "mirror-like" polished surface. The different finishes are obtained through rolling, grinding or polishing. Because different mill products are produced by different processes, the surface finishes available will vary as will the appearances of finishes obtained through similar processing. Thus, a cold finished bar will have a surface appearance different from that of a cold finished sheet. As grinding and polishing are involved, the differences become smaller and may, with proper care, be eliminated.

Of the variety of finishes available on stainless steel sheets, three are of primary interest to architects:

No. 2D is a dull, cold rolled finish with a soft, non-reflective surface. This grade is usually the one preferred for large flat areas such as curtain wall spandrels, column covers and the like. It also has had successful application as flashing, coping and other components where a soft color is desired or no special finish requirements exist.

No. 2B is a bright, cold rolled finish similar to, but somewhat brighter than, 2D. The surface is moderately reflective and is often specified for moderate highlighting in mullions, column covers (normally above ground level) and standard or special windows. Type 430 in a 2B finish is particularly bright and often specified for store front application because of the minimum polishing or buffing needed to achieve the high finish commonly called for in that application.

No. 4 finish is obtained by grinding and polishing with abrasives, finishing with a 150 grit. It has a grained, bright, smooth finish. Because the finish is obtained by grinding and polishing, it can be reproduced in fabrication. Hence this is the finish often specified when welds must be blended or fabrication marking removed for close inspection at eye level. It is the normal finish for entrances, column covers, interior and exterior trim, and all traffic resisting applications.

Special Finishes

While standard finishes applied at the mill are usually more economical, variations of surface appearance can be obtained through use of different polishing techniques, mechanical working or application of color to stainless steel surfaces.

Two special treatment techniques which permit design variability and may help solve detailing problems are surface texturing and coloring.

Surface texturing can be obtained through press brake or die operations to obtain special patterns or effects. Commonly, however, it is obtained through the use of "semi-fabricated" sheet material which has had an overall texture produced in its surface. This texture may take one of two forms. It may be coined or embossed into one surface only, thus serving primarily to deflect light and eliminate any undesirable reflections. On the other hand, the texture may be produced between mating rolls which force the metal into a three-dimensional texture and adds stiffness to the metal while giving an overall surface treatment. Use of this system, with deeper patterns, often permits reduction in gage without danger of distortion in relatively large surfaces.

Coloring can be obtained through a variety of systems. Black is perhaps best obtained through chemical treatment of the surface. Other colors can be obtained through coating with thermo-setting acrylics, through porcelain enameling, or other proprietary systems.

The corrosion resistance of stainless steel makes it possible to combine colored and uncolored areas either on flat panels or on textured panels which can be colored and then highlighted by grinding the color from high spots. The stainless steel will not corrode in exposed areas or under edges of color, thus assuring freedom from induced spalling, peeling or flaking.

Design Criteria

If the stainless steels are to be utilized efficiently and economically, their advantageous properties must be taken into account

in basic design. Design of components must be based on the properties and formability of stainless steel, not on sections and criteria developed for other materials. Thus, structural or load-bearing components such as mullions, door and window sections of stainless steel most often are formed of thin sheet or strip rather than extruded in double or triple thickness of section. Because architects specify stainless steel for a myriad of applications under a wide range of loading conditions, and since appearance usually is a critical factor, detailed recommendations for minimum thickness of stainless steel in different applications is not feasible when optimum economy must be maintained. The architectural specialists of the stainless steel producers, and the many competent architectural metal fabricators who have worked with the metal are, however, always ready to assist in preparing specifications or reviewing proposals.

The control of reflection is a problem common to most sheet materials. Nonferrous metals and glass along with stainless steels in the more reflective finishes can cause esthetic difficulties in service when large areas give distorted reflections. The problem of controlling distortion is, perhaps, greater when using stainless steel than when using other metals, because the reflective surface will maintain its luster longer and because the material can be used in extremely thin sections so far as structural requirements are concerned. The most basic and effective control of distortion is to avoid or minimize large plane areas. There are many methods of doing this which have been tried in practice and proved to work.

1. The Heppenstahl Building in Pittsburgh is completely faced with solid, unbroken wall of stainless steel, and in that particular case, a series of slightly concave panels were used. Incidentally, this building, in the heart of Pittsburgh's

most industralized area, is kept in "mint" condition through an annual washing which requires about 15 man days.

The same technique is used on many well designed column covers.

2. Some of the manufacturers of standard curtain walls such as Mahon, Robertson and the like used ribbed or fluted panels.

3. There are several applications of die pressed panels in which the metal was caused to flow properly to stiffen the panels.

4. The Columbus and Southern Ohio Power Building in Columbus, Ohio, has an overall rolled-in texture pattern, as does the Union Carbide Building in New York City. In this latter case the stainless steel has been blackened as well.

5. Ordinary corrugations, or simple vertical planes, accentuated with color, as in the case of the New York Power Authority Building in Niagara and Gateway No. 4 in Pittsburgh give style, freedom from distortion and economy of material.

These same principles can be applied to a column cover as well as to a wall area.

The development of a number of systems of developing durable color coating on stainless steel has opened new design potentials. Porcelain enamel, acrylics and related coating materials adhere more effectively, we are told, to stainless steels than to other materials. Engineers tell us this is because of the corrosion resistance of the steel itself. This same corrosion resistance makes possible the use of discontinuous coatings - in

which both color and natural metal finish complement each other. One recent installation of this is on a steel company research building. Another is in our own office.

Easy Maintenance

The stainless steels do not through some strange alchemy shed or deflect dirt. Dirt will settle on stainless steel components, just as it does on components of any other construction material. But stainless steel does have a property, in its tough dense corrosion-resistant surface, which makes cleaning and maintenance less frequently required and easier when required.

The surface of stainless steel is such that dirt is more likely to wash off it during normal weathering than it will from other metals, masonry and other less dense surfaces. In the case of some nonferrous materials, surface treatment and rapid surface corrosion actually form a base on which dirt can accumulate.

The stainless steels normally used for architectural purposes, and those properly specified in the infrequent special requirement cases on the sea coast and for ultra severe industrial locations, need not be cleaned or otherwise maintained to protect their surfaces. Maintenance is required for esthetic reasons only. The Type 430 stainless steel used on Gateway Buildings 1, 2 and 3 in Pittsburgh is an example. Although not the grade which normally would have been specified, it had to be used because of nickel restrictions during the Korean episode while the buildings were under construction. It was understood that the buildings would be washed annually and the grade was, therefore, furnished. Instead of annual cleaning, the first and to date only washing was given the building last summer after 8 years. The cleaning contractor reported no problems. The steel itself is in perfect condition.

Normal service cleaning of stainless steels can be accomplished with detergents and water. If tightly adherent deposits resist detergent washing, abrasive cleaners may be used with reasonable care for finish. There is no applied coating on stainless steels which must be protected during cleaning lest it be broken through to less corrosion-resistant material below. Stainless steels have the same corrosion resistance all the way through.

In the event that scouring is required, stainless steel or fiber scouring sponges or wool are recommended. Use of common steel wool or steel scrapers is to be avoided as small particles of common steel which may become imbedded in the surface during cleaning will be locii for rust spotting.

In traffic areas some building operators have found it desirable to coat areas of stainless steel subject to touch by fingers with a thin coating of wax. Some of these waxes contain a lanolin base which seems to absorb the oil from fingerprints. In no case is lacquering or heavy waxing necessary or recommended.

NEW DESIGN DATA

Characteristics Of Stainless Steels

The accompanying "selector chart" has the advantage of compressing a lot of information in a comparatively small space and arranging that information in a convenient, informative fashion. But in order to accomplish this, some generalizations had to be made.

It is therefore most important that the chart be used *as a guide only*, rather than considered as a definitive compilation of data. These data are assembled from many sources. In some cases variations in analysis among specific heats tested may make it impossible to match figures across the chart with any one specific lot of steel. Comprehensive data sheets are available from steel suppliers and from American Iron and Steel Institute. These should always be consulted for critical applications.

In no case should this material be considered complete for any grade. Individual steel companies have staffs of research and development specialists who will be most happy to help manufacturers solve prob-ems of stainless selection, design or fabrication.

NOTES

1) Some grades listed are special modifications of a primary grade. For the most part their behavior and properties are basically the same as the parent grade. This is indicated in the chart.

A—Austenitic, hardenable by cold working; not hardenable by heat treatment.
M—Martensitic, hardenable by heat treatment.
F—Ferritic not hardenable by heat treatment nor cold working.

Followed by rapid cooling.

Followed by slow cooling.

Tempering within the range of 750° to 1050°F is not recommended because of resulting low and erratic impact properties and reduced corrosion resistance.

As cold worked this value decreases.

Interpolated.

Courtesy: The Committee of Stainless Steel Producers, American and Steel Institute, 150 E. 42nd St., New York 17, N. Y.

om the May 15, 1957 issues of DESIGN NEWS and PURCHASING NEWS.

AISI TYPE NUMBER	PURPOSE OF FORMULATION	SIMPLIFIED TABLE OF COMPOSITIONS (APPROXIMATE PERCENTAGES)							
		Cr Chromium	Ni Nickel	C Carbon Max.	Mn Manganese Max.	Si Silicon Max.	P Phosphorous Max.	S Sulfur Max.	Other
201	High work hardening rate - low nickel equivalent to Type 301.	16.0/ 18.0	3.5/ 5.5	0.15	5.5/ 7.5	1.00	0.060	0.030	N 0.25 max.
202	General purpose low nickel equivalent to Type 302	17.0/ 19.0	4.0/ 6.0	0.15	7.5/ 10.0	1.00	0.060	0.030	N 0.25 max
301	High work hardening rate - used for structural application and where high strength plus high ductility is required.	16.00/ 18.00	6.00/ 8.00	0.15	2.00	1.00	0.045	0.030	
302	The general purpose austentic stainless steel.	17.00 19.00	8.00 10.00	0.15	2.00	1.00	0.045	0.030	
302B	More scale resistance than Type 302.	17.00/ 19.00	8.00/ 10.00	0.15	2.00	2.00/ 3.00	0.045	0.030	
303	Free machining modification of Type 302 - for heavier cuts.	17.00/ 19.00	8.00/ 10.00	0.15	2.00	1.00	0.20	0.15 min	Mo 0.60 max. Zr 0.60 max. optional
303Se (1)	Free machining modification of Type 302 - for lighter cuts and where hot working or cold heading may be involved.	17.00/ 19.00	8.00/ 10.00	0.15	2.00	1.00	0.20	0.06	Se 0.15 min.
304	Low carbon modification of Type 302 for restriction of carbide precipitation during welding.	18.00/ 20.00	8.00/ 12.00	0.08	2.00	1.00	0.045	0.030	
304L (1)	Lower carbon modification of Type 304 for further restriction of carbide precipitation during welding.	18.00/ 20.00	8.00/ 12.00	0.03	2.00	1.00	0.045	0.030	
305	Low work hardening rate - used for spin forming and severe drawing operations.	17.00/ 19.00	10.00/ 13.00	0.12	2.00	1.00	0.045	0.030	
308	Higher alloy steel having higher corrosion and heat resistance. Major use for welding rod to compensate for alloy loss in welding.	19.00/ 21.00	10.00/ 12.00	0.08	2.00	1.00	0.045	0.030	
309	Used for its high temperature strength and scale resistance.	22.00/ 24.00	12.00/ 15.00	0.20	2.00	1.00	0.045	0.030	
309S (1)	Low carbon modification of Type 309 - for welded construction.	22.00/ 24.00	12.00/ 15.00	0.08	2.00	1.00	0.045	0.030	
310	Higher elevated temperature strength and scale resistance than Type 309.	24.00/ 26.00	19.00/ 22.00	0.25	2.00	1.50	0.045	0.030	
310S (1)	Low carbon modification of Type 310 - for welded construction.	24.00/ 26.00	19.00/ 22.00	0.08	2.00	1.50	0.045	0.030	
314	More scale resistance than Type 310.	23.00/ 26.00	19.00/ 22.00	0.25	2.00	1.50/ 3.00	0.045	0.030	
316	Higher corrosion resistance than Types 302 and 304. High creep strength.	16.00/ 18.00	10.00/ 14.00	0.08	2.00	1.00	0.045	0.030	Mo 2.00/ 3.00
316L (1)	Low carbon modification of Type 316 - for welded construction.	16.00/ 18.00	10.00/ 14.00	0.03	2.00	1.00	0.045	0.030	Mo 2.00/ 3.00
317	Higher corrosion and creep resistance than type 316.	18.00/ 20.00	11.00/ 15.00	0.08	2.00	1.00	0.045	0.030	Mo 3.00/ 4.00
321	Stabilized for weldments subject to severely corrosive conditions and for service in 800 to 1600F temperature range.	17.00/ 19.00	9.00/ 12.00	0.08	2.00	1.00	0.045	0.030	Ti 5xC min.
347	Same as Type 321.	17.00/ 19.00	9.00/ 13.00	0.08	2.00	1.00	0.045	0.030	Cb-Ta 10xC min.
348 (1)	Same as Type 321.	17.00/ 19.00	9.00/ 13.00	0.08	2.00	1.00	0.045	0.030	Cb-Ta 10xC min. but Ta 0.10 max.
403	"Turbine Quality" grade for steam turbine blading and other highly stressed parts.	11.50/ 13.00	-	0.15	1.00	0.50	0.040	0.030	
405	Non hardenable 12% chromium stainless steel used for weldments for which 12% chromium gives sufficient corrosion resistance.	11.50/ 14.50	-	0.08	1.00	1.00	0.040	0.030	Al 0.10/ 0.30
410	General purpose heat treatable stainless steel - machine parts, pump shafts etc.	11.50/ 13.50	-	0.15	1.00	1.00	0.040	0.030	
414	Higher hardenability steel for springs, tempered rules, machine parts.	11.50/ 13.50	1.25/ 2.50	0.15	1.00	1.00	0.040	0.030	
416	Free machining modification of Type 410 - for heavier cuts.	12.00/ 14.00	-	0.15	1.25	1.00	0.06	0.15 min	Mo 0.60 max. Zr 0.60 max. optional
416Se (1)	Free machining modification of Type 410 - for lighter cuts and where hot working...or cold heading may be involved.	12.00/ 14.00	-	0.15	1.25	1.00	0.06	0.06	Se .15 min.
420	Higher carbon modification of Type 410 often used for cutlery, surgical instruments, valve and other wear resisting parts.	12.00/ 14.00	-	Over 0.15	1.00	1.00	0.040	0.030	
430	General purpose non hardenable chromium stainless steel.	14.00/ 18.00	-	0.12	1.00	1.00	0.040	0.030	
430F	Free machining modification of Type 430 - for heavier cuts.	14.00/ 18.00	-	0.12	1.25	1.00	0.06	0.15 min	Mo 0.60 max. Zr 0.60 max. optional
430FSe (1)	Free machining modification of Type 430-for lighter cuts and where hot working..or cold heading may be involved.	14.00/ 18.00	-	0.12	1.25	1.00	0.06	0.06	Se 0.15 min.
431	Special purpose hardenable steel used where particularly high mechanical properties are required.	15.00/ 17.00	1.25/ 2.50	0.20	1.00	1.00	0.040	0.030	
440A	Hardenable to higher hardness than Type 420 with good corrosion resistance.	16.00/ 18.00	-	0.60/ 0.75	1.00	1.00	0.040	0.030	Mo 0.75 max.
440B	Cutlery grade-for finest types of stainless cutlery, valve parts, and other wear resisting and high hardness parts.	16.00/ 18.00	-	0.75/ 0.95	1.00	1.00	0.040	0.030	Mo 0.75 max.
440C	Yields highest hardnesses of hardenable stainless steels for balls, bearings races.	16.00/ 18.00	-	0.95/ 1.20	1.00	1.00	0.040	0.030	Mo 0.75 max.
446	High resistance to corrosion and scaling at high temperatures especially for intermittent service. Often used in preference to chromium nickel types in sulfur bearing atmosphere.	23.00/ 27.00	-	0.20	1.50	1.00	0.040	0.030	N 0.25 max.

AISI TYPE NUMBER	REMARKS ON FABRICATION (ANNEALED)					TYPE OF STRUCTURE	REPRESENTATIVE MECHANICAL PROPERTIES (ANNEALED AT ROOM TEMPERATURE		
	Cutting	Machining	Forming	Joining	Finishing		Tensile Strength psi	Yield Strength (.2% offset) psi	Elongation Percent in 2 inches
201	Heavier tools and more rigid equipment are desirable for any type of cutting operation. Use from 30 to 50% greater shear capacity. Austenitic types require especially close adjustment of shear blades. And it is necessary to cut further through the thickness of metal, since pieces will not snap off when partially cut through as easily as with other metals. Type 446 conforms with the above, but slightly greater care is required in expanding because of the grade's high chromium content.	Suitable	Higher work hardening characteristics make this grade less suitable for any but moderate forming by drawing, stamping, hydroforming and spinning.	Normally spot welded to maintain high strength.	Stainless steels other than free machining varieties are suitable to finishing to all degrees of brightness. Free machining varieties 303, 303Se, 416, 416Se, 430F and 430F Se, & titanium stabilized type 321, may show discontinuities in high polishes and finishes - owing to additions made to enhance characteristics.	A	Sheet 115,000 Strip 115,000	Sheet 55,000 Strip 55,000	Sheet 55 Strip 55
202			Suitable	Suitable		A	Sheet 105,000 Strip 105,000	Sheet 55,000 Strip 55,000	Sheet 55 Strip 55
301			Same as Type 201	Same as Type 201		A	Plate 105,000 Sheet 110,000 Strip 110,000	Plate 30,000 Sheet 40,000 Strip 40,000	Plate 55 Sheet 60 Strip 60
302		Suitable - 45% of bessemer Screw Stock	Suitable	Suitable		A	Bar 85,000 Plate 90,000 Sheet 90,000 Strip 90,000	Bar 35,000 Plate 35,000 Sheet 40,000 Strip 40,000	Bar 60 Plate 60 Sheet 50 Strip 50
302B		Suitable	Suitable for forging, bending and roll forming.	Suitable. Higher silicon content may necessitate special care to avoid cracking in fusion and resistance welding.		A	Bar 90,000 Plate 90,000 Sheet 95,000 Strip 95,000	Bar 40,000 Plate 40,000 Sheet 40,000 Strip 40,000	Bar 50 Plate 50 Sheet 55 Strip 55
303		Best of austenitic steels - 75% of Bessemer Screw Stock	Forging susceptible to hot shortness. Additions to improve machining characteristics lessen formability.	Fasten mechanically - fusion joining not recommended.		A	Bar 90,000	Bar 35,000	Bar 50
303Se (1)			Additions to improve machining characteristics lessen formability.						
304		Suitable	Suitable	Suitable for fusion welding, silver brazing and high temp soldering - not necessarily easier to weld but lower carbon reduces carbide precipitation. Suitable for other joining.		A	Bar 85,000 Plate 85,000 Sheet 85,000 Strip 85,000	Bar 35,000 Plate 30,000 Sheet 35,000 Strip 35,000	Bar 60 Plate 60 Sheet 50 Strip 50
304L (1)							Plate 75,000 Sheet 75,000 Strip 75,000	Plate 28,000 Sheet 28,000 Strip 28,000	Plate 50 Sheet 50 Strip 50
305		Slower speeds and low feeds are required because of "gumminess"	Exceptionally good for deep drawing and spinning. Suitable for other forming.	Exceptionally good for riveting. Suitable for other joining.		A	Plate 85,000 Sheet 85,000 Strip 85,000	Plate 35,000 Sheet 38,000 Strip 38,000	Plate 55 Sheet 50 Strip 50
308		Slower speeds and low feeds are necessary except for reaming and broaching which are less critical	Suitable but drawing is generally done only when necessitated by ultimate use.	Suitable		A	Bar 85,000 Plate 85,000 Sheet 85,000 Strip 85,000	Bar 30,000 Plate 30,000 Sheet 35,000 Strip 35,000	Bar 55 Plate 55 Sheet 50 Strip 50
309			Suitable. Forging requires higher pressures and die considerations. Drawing not advised unless required by ultimate use.			A	Bar 95,000 Plate 95,000 Sheet 90,000 Strip 90,000	Bar 40,000 Plate 40,000 Sheet 45,000 Strip 45,000	Bar 45 Plate 45 Sheet 45 Strip 45
309S (1)									
310				Same as Type 305		A	Bar 95,000 Plate 95,000 Sheet 95,000 Strip 95,000	Bar 45,000 Plate 45,000 Sheet 45,000 Strip 45,000	Bar 50 Plate 50 Sheet 45 Strip 45
310S (1)				Same as Type 310					
314				Exceptionally good riveting suitable otherwise except fusion and resistance welding may necessitate special care to avoid cracking.		A	Bar 100,000 Plate 100,000 Sheet 100,000	Bar 50,000 Plate 50,000 Sheet 50,000	Bar 45 Plate 45 Sheet 40
316			Suitable. Forging requires higher pressures and special die considerations owing to elevated temperature strength.	Suitable		A	Bar 80,000 Plate 85,000 Sheet 90,000 Strip 90,000	Bar 30,000 Plate 35,000 Sheet 40,000 Strip 40,000	Bar 60 Plate 55 Sheet 50 Strip 50
316L (1)				Same as Type 304					
317				Suitable		A	Bar 85,000 Plate 85,000 Sheet 90,000 Strip 90,000	Bar 40,000 Plate 40,000 Sheet 40,000 Strip 40,000	Bar 50 Plate 50 Sheet 45 Strip 45
321			Suitable	Same as Type 304-but free from chromium carbide precipitation.		A	Bar 85,000 Plate 85,000 Sheet 90,000 Strip 90,000	Bar 35,000 Plate 30,000 Sheet 35,000 Strip 35,000	Bar 55 Plate 55 Sheet 50 Strip 50
347						A	Bar 90,000 Plate 90,000 Sheet 95,000 Strip 95,000	Bar 35,000 Plate 35,000 Sheet 40,000 Strip 40,000	Bar 50 Plate 50 Sheet 45 Strip 45
348 (1)									
403		Suitable		Exceptionally good riveting - suitable otherwise. In fusion welding, pre-heating, post heating or both, are required to prevent cracking.		M	Bar 75,000 Sheet 65,000 Strip 65,000	Bar 40,000 Sheet 35,000 Strip 35,000	Bar 35 Sheet 25 Strip 25
405				Exceptionally good riveting and fusion welding. Suitable for all other joining.		F	Bar 70,000 Plate 65,000 Sheet 65,000	Bar 40,000 Plate 40,000 Sheet 40,000	Bar 30 Plate 30 Sheet 25
410				Same as Type 403.		M	Bar 75,000 Plate 70,000 Sheet 65,000 Strip 65,000	Bar 40,000 Plate 35,000 Sheet 35,000 Strip 35,000	Bar 35 Plate 30 Sheet 25 Strip 25
414			Suitable-drawing, stamping and spinning formability is restricted because of greater hardness of annealed steel.	Suitable. In fusion welding, pre-heating, post heating, or both are usually required to prevent cracking.		M	Bar 115,000 Plate 115,000 Sheet 120,000 Strip 120,000	Bar 90,000 Plate 90,000 Sheet 105,000 Strip 105,000	Bar 20 Plate 20 Sheet 15 Strip 15
416		Best of hardenable stainless steels-85% of Bessemer Screw Stock.	Forging susceptible to hot shortness-additions to improve machining characteristics lessen formability in other forming.	Fasten mechanically - fusion joining not recommended.		M	Bar 75,000	Bar 40,000	Bar 30
416Se (1)			Additions to improve machining characteristics lessen formability.						
420		Machining requires more power, smaller cuts because of greater hardness.	Suitable for forging - other formability restricted because of greater hardness of annealed steel.	Suitable. In Fusion welding and resistance welding, preheating, post heating, or both are usually required to prevent cracking. Not generally riveted.		M	Bar 95,000	Bar 50,000	Bar 25
430		Suitable — 54% of Bessemer Screw Stock	Exceptionally good spinning - suitable for other forming	Suggest that non standard titanium modification be used for welding.		F	Bar 75,000 Plate 75,000 Sheet 75,000 Strip 75,000	Bar 45,000 Plate 40,000 Sheet 45,000 Strip 45,000	Bar 30 Plate 30 Sheet 25 Strip 25
430F		Best machining of all stainless steels-90% of Bessemer Screw Stock.	Same as Type 416.	Same as Types 303 and 303Se.			Bar 80,000	Bar 55,000	Bar 25
430FSe (1)			Same as Type 416Se.						
431		Suitable	Same as Type 414.	Same as Type 414		M	Bar 125,000	Bar 95,000	Bar 20
440A		More power, smaller cuts necessary because of greater hardness of annealed steel.	Spinning virtually impossible.	Same as Type 420.		M	Bar 105,000	Bar 60,000	Bar 20
440B							Bar 107,000	Bar 62,000	Bar 18
440C							Bar 110,000	Bar 65,000	Bar 14
446		Suitable	Suitable-slightly greater care required in bending, roll forming, drawing and spinning owing to higher chromium content.	Greater care required in welding, brazing and high temp. soldering because of high chromium content.		F	Bar 80,000 Plate 85,000 Sheet 80,000 Strip 80,000	Bar 50,000 Plate 55,000 Sheet 50,000 Strip 50,000	Bar 25 Plate 25 Sheet 20 Strip 20

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	NOMINAL PROPERTIES AT LOW TEMPERATURES (Annealed)					ELEVATED TEMPERATURE SERVICE							HEAT TREATING						PHYSICAL PROPERTIES (Annealed)										
						Creep Strengths					Scaling Temp.		TEMPERATURES DEGREES F						Modulus of Elasticity						Mean Coefficient of Expansion Per Degree F				
						Load For 1% Elongation in 10,000 Hours, psi.																							
kwell rdness	Yield Strength psi	Tensile Strength psi	% Elongation in 2 inches	% Reduction of Area	Izod Impact ft - lb	1000 F	1100 F	1200 F	1300 F	1500 F	Max.Cont. Service in Air	Max.Inter. Service in Air	Initial Forging	Annealing	Hardening	Tempering	Stress-Relief Anneal	Melting Range	Tension psi	Torsion psi	Density lbs/cu. in.	Specific Elect. Resist μohms cm/cm²	Specific heat Btu/lb. Deg.F	Thermal Conduct Btu/hr./Sq.Ft./Deg.F	32-212	32-600	32-1000	32-1200	32-1500
B-90 -90													2100-2250	1850-2050 (3)	Austenitic grades hardenable by cold work only	Austenitic grades hardenable by cold work only			28.6×10^{6} (5)						8.73×10^{-6}	9.66×10^{-6}	10.2×10^{-6} (6)		
													2100-2250	1850-2050 (3)					28.6×10^{6} (5)							10.2×10^{-6}	10.7×10^{-6} (6)	11.0×10^{-6} (6)	
B-90 -90 B-85 B-85	+70F 40,000 +32F 43,000 -40F 48,000 -80F 50,000 -320F 75.000	+70F 105,000 +32F 155,000 -40F 180,000 -80F 195,000 -320F 275,000	+70F 60 +32F 53 -40F 42 -80F 40 -320F 30	+70F 70 +32F 64 -40F 63 -80F 62 -320F 57	+70F 100 +32F 110 -40F 110 -80F 110 -320F 110						1700.	1600	2100-2300	1850-2050 (3)			400-750	2550-2590	28×10^{6} (5)	12.5×10^{6} (5)	0.29	72	0.12	9.4	9.4×10^{-6}	9.5×10^{-6}	10.1×10^{-6}	10.4×10^{-6}	
B-80 B-85 -85	+70F 38,000 +32F 40,000 -40F 48,000 -80F 50,000 -320F 56.000	+70F 92,000 +32F 122,000 -40F 145,000 -80F 161,000 -320F 235,000	+70F 68 +32F 65 -40F 60 -80F 57 -320F 40	+70F 78 +32F 76 -40F 73 -80F 70 -320F 59	+70F 110 +32F 110 -40F 110 -80F 110 -320F 110	17,000	12,000	7,000	4,000	1,200	1700	1600	2100-2300	1850-2050 (3)			400-750	2550-2590	28×10^{6} (5)	12.5×10^{6} (5)	0.29	72	0.12	9.4	9.6×10^{-6}	9.9×10^{-6}	10.2×10^{-6}	10.4×10^{-6}	
85 B-85 B-85 B-85								7,000	4,500	1,000			2050-2250	1850-2050 (3)				2500-2550	28×10^{6}		0.29	72	0.12	9.2	9.0×10^{-6}	10.0×10^{-6}	10.8×10^{-6}	11.2×10^{-6}	
						16,500	11,500	6,500	3,500		1700	1400	2100-2350	1850-2050 (3)			400-750	2550-2590	28×10^{6}		0.29	72	0.12	9.4	9.6×10^{-6}	9.9×10^{-6}	10.2×10^{-6}	10.4×10^{-6}	
B-80 B-80 B-70 B-70	+70F 35,000 +32F 34,000 -40F 34,000 -80F 34,000 -320F 39,000	+70F 88,000 +32F 130,000 -40F 155,000 -80F 170,000 -320F 246,000	+70F 62 +32F 55 -40F 47 -80F 39 -320F 32.	+70F 71 +32F 68 -40F 64 -80F 63 -320F 55	+70F110 +32F 110 -40F 110 -80F 110 -320F 110	17,000	12,000	7,000	4,000	1,200	1700	1600	2100-2300	1850-2050 (3)			400-750	2550-2650	28×10^{6}	12.5×10^{6}	0.29	72	0.12	9.4	9.6×10^{-6}	9.9×10^{-6}	10.2×10^{-6}	10.4×10^{-6}	
B-80 B-80													2100-2300	1850-2050 (3)				2550-2650	28×10^{6}	12.5×10^{6}	0.29	72	0.12	9.4	9.6×10^{-6}	9.9×10^{-6}	10.2×10^{-6}	10.4×10^{-6}	
B-80 B-80 B-80													2 100-2300	1850-2050 (3)				2550-2590	28×10^{6}		0.29	72	0.12	8.8	9.6×10^{-6}	9.9×10^{-6}	10.2×10^{-6}	10.4×10^{-6}	
B-83 B-85 B-85						15,900	11,600	8,000	4,500	1,000	2000	1800	2050-2250	1900-2050 (3)				2550-2650	29×10^{6}		0.29	78	0.12	8.0	8.3×10^{-6}	9.3×10^{-6}	9.6×10^{-6}	10.0×10^{-6}	
B-89 B-85 B-85						17,000	13,000	9,000	5,000	1,000	2100	1900	2000-2250	1900-2100 (3)			400-750	2550–2650	29×10^{6}		0.29	78	0.12	8.0	8.0×10^{-6}	9.0×10^{-6}	9.4×10^{-6}	9.7×10^{-6}	
B-85													1900-2050	2100 (3)					29×10^{6}		0.279	77	0.12	10.1		8.4×10^{-6}			9.8×10^{-6}
B-78 B-85 B-85	+70F 38,000 +32F 39,000 -40F 41,000 -80F 44,000 -320F 70,000	+70F 78,000 +32F 90,000 -40F 104,000 -80F 118,000 -320F 180,000	+70F 60 +32F 60 -40F 59 -80F 57 -320F 46	+70F 76 +32F 75 -40F 75 -80F 73 -320F 64	+70F 110 +32F 110 -40F 110 -80F 110 -320F 110	25,000	18,200	12,700	7,900	2,800	1700	1600	2100-2300	1850-2050 (3)			400-750	2500-2550	28×10^{6}		0.29	74	0.12	9.4	8.9×10^{-6}	9.0×10^{-6}	9.7×10^{-6}	10.3×10^{-6}	11.1×10^{-6}
B-85 B-85						22,500	17,000	11,000	7,100				2100-2300	1850-2050 (3)				2500-2550	28×10^{6}		0.29	74	0.12	9.4	8.9×10^{-6}	9.0×10^{-6}	9.7×10^{-6}	10.3×10^{-6}	11.1×10^{-6}
B-80 B-80						18,000	13,000	8,000	4,500	850	1700	1600	2100-2300	1750-1950 (3) Stabilizing 1550-1650			400-750	2550-2600	28×10^{6}		0.29	72	0.12	9.3	9.3×10^{-6}	9.5×10^{-6}	10.3×10^{-6}	10.7×10^{-6}	11.2×10^{-6}
B-85 B-85	+70F 40,000 +32F 42,000 -40F 44,000 -80F 45,000 -320F 51,000	+70F 84,000 +32F 105,000 -40F 117,000 -80F 130,000 -320F 195,000	+70F 60 +32F 62 -40F 63 -80F 57 -320F 40	+70F 72 +32F 72 -40F 71 -80F 70 -320F 64	+70F 110 +32F 110 -40F 110 -80F 110 -320F 110	19,000	14,000	8,200	4,600	1,500	1700	1600	2100-2300	1850-2050 (3) Stabilizing 1550-1650			400-750	2550-2600	28×10^{6}		0.29	73	0.12	9.3	9.3×10^{-6}	9.5×10^{-6}	10.3×10^{-6}	0.6×10^{-6}	11.1×10^{-6}
B-82 B-80 B-80						9,200	4,200	2,000	1,000				2000-2200 (retarded cool)	Full Anneal 1500-1650 (3a) Low Anneal 1200-1400	1700–1850 (3)	400-1400 (4)		2700-2790	29×10^{6}		0.28	57	0.11	14.4	5.5×10^{-6}	5.6×10^{-6}	6.4×10^{-6}	5.5×10^{-6}	
B-75											1300	1500	1950-2050	Low Anneal 1350-1500	Not Appreciably Hardenable	Not Appreciably Hardenable		2700-2790	29×10^{6}		0.28	60	0.11		6.0×10^{-6}	6.4×10^{-6}	6.7×10^{-6}		7.5×10^{-6}
B-82 B-80 B-80	+70F 87,000 +32F 89,000 -40F 90,000 -80F 94,000 -320F 148,000	+70F 110,000 +32F 115,000 -40F 122,000 -80F 128,000 -320F 158,000	+70F 21 +32F 24 -40F 23 -80F 22 -320F 10	+70F 68 +32F 69 -40F 64 -80F 60 -320F 11	+70F 85 +32F 40 -40F 25 -80F 25 -320F 5	9,200	4,200	2,000	1,000		1300	1500	2000-2200 (retarded cool)	Full Anneal 1500-1650 (3a) Low Anneal 1200-1400	1700-1850 (3)	400-1400 (4)		2700-2790	29×10^{6}		0.28	57	0.11	14.4	5.5×10^{-6}	5.6×10^{-6}	6.4×10^{-6}	6.5×10^{-6}	
B-98 B-98													2100-2200 (retarded cool) and anneal)	Full Anneal Not Practical Low Anneal 1200-1300	1800-1900 (3)	400-1300 (4)			29×10^{6}		0.28	70	0.11	14.4	5.8×10^{-6}	6.1×10^{-6}	6.7×10^{-6}		
B-82											1250	1400	2100-2300 (retarded cool)	Full Anneal 1500-1650 (3a) Low Anneal 1200-1400	1700-1850 (3)	400-1400 (4)		2700-2790	29×10^{6}		0.28	57	0.11	14.4	5.5×10^{-6}	5.6×10^{-6}	6.4×10^{-6}	6.5×10^{-6}	
B-92											1200	1400	2000-2200 (retarded cool and anneal)	1550-1650 (3a) Low Anneal 1350-1450	1800-1900 (3)	300-700		2650-2750	29×10^{6}	11.7×10^{6}	0.28	55	0.11	14.4	5.7×10^{-6}	6.0×10^{-6}	6.5×10^{-6}	6.8×10^{-6}	
B-80 B-80	+70F 38,000 +32F 40,000 -40F 41,000 -80F 44,000 -320F 87,000	+70F 65,000 +32F 69,000 -40F 76,000 -80F 81,000 -320F 90,000	+70F 37 +32F 37 -40F 36 -80F 36 -320F 0	+70F 73 +32F 72 -40F 72 -80F 70 -320F 4	+70F 35 +32F 20 -40F 10 -80F 8 -320F 2	8,500	4,300	2,200	1,300		1500	1600	1900-2050	Low Anneal 1400-1500	Not Appreciably Hardenable	Not Appreciably Hardenable		2600-2750	29×10^{6}		0.28	60	0.11	15.1	5.8×10^{-6}	6.1×10^{-6}	6.3×10^{-6}	6.6×10^{-6}	6.9×10^{-6}
													1950-2100	Low Anneal 1250-1400				2600-2750	29×10^{6}		0.28	60	0.11	15.1	5.8×10^{-6}	6.1×10^{-6}	6.3×10^{-6}	6.6×10^{-6}	6.9×10^{-6}
C-24													2 100-2250 (retarded cool and anneal)	Full Anneal Not Practical Low Anneal 1150-1225	1800-1950 (3)	400-1200 (4)			29×10^{6}		0.28	72	0.11	11.7	6.5×10^{-6}	6.7×10^{-6}			
B-95											1400	1500	1900-2200 (retarded cool and anneal)	Full Anneal 1550-1650 (3a) Low Anneal 1350-1450	1850-1950 (3)	300-800		2500-2750	29×10^{6}		0.28	60	0.11	14.0	5.6×10^{-6}				
B-96											1400	1500	1900-2150 (retarded cool and anneal)	Full anneal 1550-1650 (3a) Low Anneal 1350-1450	1850-1950 (3)	300-800		2500–2750	29×10^{6}		0.28	60	0.11	14.0	5.6×10^{-6}				
B-97											1400	1500	1900-2100 (retarded cool and anneal)		1850-1950 (3)	300-800		2500– 2750	29×10^{6}		0.28	60	0.11	14.0	5.6×10^{-6}				
B-86 te B-84 et B-83 p B-83						6,000	3,000	1,500	700	300	2000	2150	1950-2050	Full Anneal 1550-1650 (3a) Low Anneal 1350-1450 Low Anneal 1450-1600	Not hardenable by Thermal Treatment	Not Hardenable by Thermal Treatment		2600-2750	29×10^{6}		0.27	67	0.12	12.1	5.8×10^{-6}	6.0×10^{-6}	6.2×10^{-6}	6.4×10^{-6}	

Data for Special Competition — Spring 1961

Sponsors: COMMITTEE OF STAINLESS STEEL PRODUCERS, American Iron and Steel Institute

STAINLESS STEEL FORMS AND FINISHES AVAILABLE

Stainless steels are available in virtually all forms and sizes in which other metals are available. Typical forms and finishes are:

HOT ROLLED BARS:

Rounds. Squares. Flat
Angles. Channels
Hexagons, Octagons and other special shapes are also available from various mills

COLD FINISHED BARS:

Rounds—cold drawn, ground or rough turned
Squares—cold drawn
Flats—cold drawn
Half ovals—cold drawn
Hexagons—cold drawn
Octagons—cold drawn
Special shapes—cold drawn (on application)

PIPE AND TUBING:

Pipe—In diameters and thicknesses as outlined in American Standards Association Schedules as well as special light weight schedule 5.

Tubing—Welded up to 30″ outside diameter, Seamless to over 8″ outside diameter.

Shapes—Square tubing and other shapes in sizes which can be formed from a 4″ or smaller round tube.

Finishes—In general all round tubing can be polished. Square or special shapes can be drawn from polished round tubing in some cases.

PLATES:

Are made in thicknesses 3/16″ and over in virtually all sizes available in other metals. Finish normally hot rolled annealed and descaled, although they can be obtained with a number 4 polish similar to number 4 sheet finish, and other polishes. Plates are also made of stainless steel clad on one or both sides of a carbon steel backing.

SHEETS:

Under 3/16″ thick, 24″ wide or over, are commonly produced in six standard finishes.

No. 1. Hot rolled annealed and pickled (usually used for high temperature or industrial applications, where processing will involve annealing or where surface appearance is not a factor).

No. 2D. Dull cold rolled. Suitable for roofing and other places where a nonreflective effect is desired.

No. 2B. Bright cold rolled. Somewhat brighter than 2D, but not as high a luster as a polished finish. This finish is usually used for controlled reflection on stainless steel sheathed or curtain wall construction.

No. 4. Polished—This is the finish most used for architectural applications. It can be matched in blending welds and covering fabrication markings. It is bright but not extremely reflective and shows finger marks less than other finishes.

No. 6. Polished tampico brushed—This is a number 4 finish brushed with tampico fiber. The finish is conservative, soft and of low reflectivity. It is more uniform than the number 2 finishes.

No. 7. High luster polish—This is a highly buffed finish of high luster, the highest normally furnished. (A number 8 or mirror finish is available on special order.)

STRIP:

Under 3/16″ thick and 24″ wide is produced in coils or can be obtained in cut lengths. It is most often supplied for mass production uses into moulding, roof drainage sections and the like rather than for direct application, although it may find use in some designs of curtain wall panels.

STAINLESS STEEL FABRICATED PRODUCTS IN STAINLESS AVAILABLE

Although many stainless steel building components have been completely custom designed and constructed, there are fabricated products which architects can include in their designs, as finished units, accessories or special construction materials. Typical products are:

FINISHED UNITS:

Curtain wall panels—standard designs are made by several producers, mainly for commercial and industrial use.

Doors and Door Frames—made to standard sections and designs by several producers in most forms—hollow or kalamein, swinging or revolving.

Kitchen Equipment—commercial kitchens are using standard units to become "all stainless." Cabinets, counters, drainboards, refrigerators, shelves, sinks, stoves are all made in stainless steel. Many household units are also available in stainless steel.

Paper Towel Dispensers—are offered by leading manufacturers of paper toweling.

Roof Drainage Equipment—gutters, downspouts, miters, elbows, and other accessories, caps, hangers are all made of stainless steel. They are available from roofing component jobbers stock.

Storm and Screen Doors—are standard items.

ACCESSORIES:

Hardware—many types are available including door knobs, handles, hinges, kick plates, latches, locks, push and pull bars.

Letters and Numbers—three dimensional, hollow sign and marquee letters and numbers are factory made in a wide variety of styles and sizes. In addition stamped letters and numbers for house entrances are standard.

Screening—woven from stainless steel wire and rod. From insect screening to ¼ inch diameter bars for safety and protection or decorative uses.

Through Wall Flashing—three way bonded is a standard product.

CONSTRUCTION MATERIALS:

Chain—of almost all sizes from the finest, through round and flat sash chain, to the heaviest for railings.

Expanded Stainless Steel—an expanded metal mesh similar to plaster lath—made in three dimensional or flattened patterns.

Fasteners of all sizes and types—bolts, nails, nuts, rivets, screws with all standard type heads.

Perforated Stainless Steel—in many patterns, for grilles, heat or air conditioning outlets, or other decorative uses.

Panels—of light gage stainless steel bonded to plywood or other materials to insure rigidity and flatness.

Roll Formed Sections—in a variety of shapes for mounting, storefront and glass holding components, facia and wall construction, sliding door hardware, counter and wall board trim and many other uses.

Skylight and Sash Members—for corrugated wire glass construction.

Textured Sheets and Strip—either plain or bonded on plywood allow interesting solutions where areas are constantly handled or absolutely flat areas are not desirable.

Tie Wire—for fastening wire lath with minimum size wire and assurance of long holding.

Wall Tile—in several sizes, either plain or textured surface.

Wire Rope—for stair rails, balcony or roof railing or public area division.

Stainless steels are readily forged into intricate shapes where these are needed and can be cast when shape or design necessitates this.

Stainless steels can be etched and engraved for signs, nameplates or plaques, or to give special effects. Blends of mill finishes also provide a means of esthetic architectural expression.

Special Competition Spring 1961
For Intermediate and Advanced Design Students

TILE COUNCIL OF AMERICA, INC. SCHOLARSHIPS

Sponsored by the members of the Tile Council of America, Inc. Two scholarships each of $500 are made available to winners for the pursuit of their studies in architecture.

EXHIBIT BUILDING AT THE 1964 NEW YORK WORLD'S FAIR

Design solution must be completed in any ten (10) consecutive days between January 9, 1961 and April 23, 1961.

Competition Regulations

Contestant must qualify for the grade of work for which he submits an entry.

An entry fee of $2.50 is required for each design entered for judging. This fee must be received on or before the date the entries are due at the Institute office.

Each entry shall represent the work of only one student; and only one solution to a problem may be submitted by any one student.

Entries must be identified in a space 2″ x 4″ in the lower right-hand corner on the face of each sheet by printing legibly: a) full name and address of competitor; b) name of school, atelier, or supervisor; c) grade and title of the competition. A space 8″ x 10″ for jury comments, if desired, may be provided in the upper right-hand corner.

All parts of any entry must be uniform in size not exceeding 30″ x 40″; technique or presentation is optional unless otherwise called for in a program.

All plans to be similarly oriented.

Entries must be sent prepaid upon completion. They will be returned collect.

Notice of shipment shall be mailed to the NIAE giving date and express receipt number (if any); in duplicate on a separate list for each problem, an alphabetical listing of the names of entrants with the number of pieces comprising each entry. (The duplicate list will be returned with notation of outcome immediately following the judging.)

Announcement of awards will be made promptly after each judgment. Complete report of judgment together with photographs of premiated designs will be published in the BULLETIN of the NIAE, as soon after the judgment as the material can be prepared. BULLETIN subscription rate is $25 for the school year with photographs (approximately 100 prints); without photographs the rate is $2. Photographs or reports of current problems may be purchased singly at $1 per report or print.

Additional copies of program may be purchased at $1 for a single copy; $8 for 10 copies; $20 for 30 copies.

Address all correspondence and shipments to National Institute for Architectural Education, 115 East 40th Street, New York 16, N. Y.

Circular of information for 1960-1961 will be mailed on request.

EXHIBIT BUILDING AT THE 1964 NEW YORK WORLD'S FAIR

TILE COUNCIL OF AMERICA, INC. SCHOLARSHIPS

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Two scholarships each of $500 are made available to winners for the pursuit of their studies in architecture.

The Design Board of the New York World's Fair has designated an area of the Fair grounds for the building industry. This area will have an open central plaza and walks from this plaza will subdivide the total area into plots for the individual exhibit buildings of the various materials used in the construction industry.

The Tile Council of America, Inc. has been assigned a level equal angle trapezoidal shaped plot having a frontage on the north side of a major walk running east and west, of 80 feet, a depth of 200 feet and a rear boundary parallel to the walk of 160 feet. All sides of the plot other than the 80 feet fronting on the walk adjoin other exhibit plots.

On this plot the exhibition building for the Tile Council of America will be constructed. This exhibition building is to contain exhibits that not only show all the types of ceramic tiles that are made, but all the possible uses both exterior and interior of ceramic tile. The only fixed requirements for the building are that it shall not exceed 5000 sq. ft. in area and space is to be allotted within the building for two offices and men's and women's toilets, and a storage room. Allow 150 sq. ft. each for these five areas.

The treatment of the site and the building and interior space, method of displaying the various types of ceramic tile and their uses are all left to the inspiration of the designer.

REQUIRED:

Presentation on one board 30″ x 40″ or two boards 20″ x 30″.

Plot plan and building plan or plans at the scale of ⅛″ to the foot.

Section at ⅛″ to the foot.

Exterior perspective in color at as large a scale as possible. Intimate perspective in color of the most important feature of the problem at as large a scale as possible.

NOTE: This problem is a challenge to the contestants to use domestic ceramic tile imaginatively and creatively, and not in the usual standard applications.

Funds for these scholarship awards have been made available through the generosity of the Tile Council of America, Inc., which has genuine interest in the development of architectural education. It has, however, in no way dictated the character, or any of the requirements of the program. These requirements have been determined solely by the NIAE on a purely educational basis, as will be the jury's evaluation of the submissions.

DATA ON CERAMIC TILE

Courtesy of the TILE COUNCIL OF AMERICA, INC.

In conjunction with their annual scholarship awards, the Tile Council of America, Inc., comprising 29 leading U. S. manufacturers of ceramic floor and wall tile, have compiled the following factual information to give students a working knowledge of the material. The scholarships offered in collaboration with the National Institute for Architectural Education this year are two scholarships of $500 each.

What Ceramic Tile Is. Tile is made from clay and/or other ceramic materials and fired at very high temperatures (2,000° approximately) to produce a strong, durable material.

The products manufactured by the members of the Tile Council range from 1/4″ to 3/4″ in thickness and are used as a veneering surfacing material which is permanent, attractive and maintenance free. Ceramic tile is not to be confused with structural clay tile, terra cotta, or concrete block.

The following comprise the ceramic tile family:

Glazed Tiles often specified are 4 1/4″ x 4 1/4″, 6″ x 6″ and 6″ x 3″. However, other sizes generally available range from as small as 1 1/4″ x 1 1/4″ up to 12″ x 12″. Glazed tile usually is used for walls, but special types can be used for floors receiving light traffic.

Unglazed Tiles range in size from 11/32″ x 11/32″ to 6″ x 6″. The smaller sizes called ceramic mosaics are about 1/4″ thick and are mounted into sheets to permit rapid installation. Usual size of ceramic mosaics are 3/4″ x 3/4″, 1-9/16″ x 3/4″, 1-9/16″ x 1-9/16″, 1″ x 1″, 1″ x 2″, 2″ x 2″, 1-1/16″ x 1-1/16″, 2-3/16″ x 1-1/16″, and 2-3/16″ x 2-3/16″. The larger sizes, 4″ x 4″ and 6″ x 6″, called pavers are not mounted. Unglazed tile are used on both floors and walls.

Quarry Tiles are a heavy-duty glazed or unglazed type usually used for floors but also on walls and counters. Common sizes are 2 3/4″ x 2 3/4″, 2 3/4″ x 6″, 2 1/4″ x 8″, 3 7/8″ x 8″, 3 7/8″ x 12″, 6″ x 6″, 6″ x 9″, and 9″ x 9″.

Properties of Ceramic Tile. Ceramic tile is waterproof, colorfast, fireproof, sanitary and easily cleaned, durable and unaffected by acids and alkalis. It is stainproof, non-absorbent and resistant to abrasion. It does not need waxing, varnishing, painting or other redecorating, so that it has one of the lowest maintenance costs of all materials.

Tile in Architecture. Ceramic tile has been used for more than 7,000 years. It has played an important role in the architecture of Egypt, Persia, Turkey, Italy, Spain, Germany, France, Holland, England, Brazil and other nations. In the United States it has been used since Colonial times.

Design Possibilities. Ceramic tile is now made in more than 200 shades of basic colors. It is also manufactured in a great variety of sizes, and as a result practically any pattern can be worked out in it.

Installation Methods vary according to circumstances. The new dry-curing, thin-setting mortars manufactured in accordance with the Tile Council's formula 756 have the favorable characteristics of conventional mortar and can be used to set dry tile on dry backing. This frees the mechanic from the usual chores of soaking tile, saturating block walls and maintaining damp conditions.

Installation specifications for ceramic tile with conventional cement mortar as well as dry-set mortar and adhesives may be obtained from the Tile Council of America.

Uses of Ceramic Tile are unlimited on interiors and exteriors of residential, commercial, institutional and industrial buildings. Besides bathrooms, typical residential uses include kitchens, family rooms, living and dining areas, bedrooms, basements, terraces, porches, patios, foyers, fireplaces, window sills, and work counters. In hospitals ceramic tile is found in operating rooms, diet kitchens, corridors and promenade decks. Ceramic tile is practically standard for washrooms in public and commercial structures, walls and floors in restaurant and cafeteria kitchens, store fronts, grease pits and automobile showrooms and floors and walls of dairy and bottling plants.

For further information. Local tile contractors can show tile samples and suggest installations to visit. The Tile Council of America, Inc., at 800 Second Ave., New York 17, N. Y., will be glad to answer any special technical questions.

. S. IS BECOMING NATION OF BOXES, ILLBOARDS, BAR-B-Q'S

Y EDWARD D. STONE

ourtesy of the "Richmond News Leader".
Back on November 18, one of the world's foremost rchitects, Edward D. Stone, visited Richmond as a uest of the National Conference of Editorial Writers. e spoke to the visiting editors, who were meeting t the Virginia Museum of Fine Arts, without text or ven notes. From a tape recording, a transcript now as been made of his remarks. This informal and npolished text offers a fascinating glimpse of a reative mind at ease."

e do everything rapidly in this country, and I think hat in thirty or forty years we have succeeded in con-erting it from the most beautiful country in the world o one of the ugliest. An English observer visiting his country said that he noticed a firm determination n our part to pave our country with car lots, beer ans, billboards and Bar-B-Q's in order that we might hiz by in a lemon-yellow Cadillac with a platinum londe and contemplate the ruins in style.

his is a pretty contrived but richly deserved insult, 'm afraid. Someone else has said that in this era of rosperity and overabundance we seem to be able to fford everything but beauty. When I was at Harvard n the twenties, Cape Cod was a fabulously beautiful emnant of colonial life, with charming village greens, tately elms and picturesque fishing villages. But this as long since gone. It is now a forest of billboards, onky tonks, and no longer remains an exquisite re-inder of our past. The same is true of Lake Tahoe, ne of our great spots of beauty in this country on the evada-California border. But this is also gone, de-astated by cheap, catch-penny tourist developments.

nd when I came to New York in 1929, in November, hich by the way was the least auspicious moment in his century to start a career, Long Island was a park eadily accessible for the recreation of the people in he vicinity. As you know, it now has been completely sed up by the construction of speculative houses. With iles of these little square boxes, the beauty of the pen country is gone. You have to ride some forty or ifty miles before you reach the open countryside.

f course, all highways should be free of billboards nd hamburger joints, and all commercial activities hould be removed from the highways. They should e tree-lined. Recently some high officials of the utomobile industry recommended that all trees be cut long the highways as a menace to motorists. I don't hink assassination is the solution. Perhaps the car anufacturer could eliminate four feet of vulgarity rom the length of these cars and spend the money reating an attractive destination for the motorists. France, which physically was a comparatively uninteresting country, has through man's efforts, through the centuries, become one of the most beautiful countries in the world. This is largely owing to its tree-lined roads, its compact, charming villages. It's very comparable too, in the balance of agriculture and industry, to our middlewestern States. Can you imagine anyone voluntarily going to Iowa, or Ohio, such a long distance, just to view the shambles? As far as cities are concerned, when Frank Lloyd Wright was asked to come to Pittsburgh to advise the city fathers on what should be done with their city, he said, "Gentlemen, there's only one solution. Abandon it."

In New York, we have three things to be thankful for: The Hudson River, which separates us from Hoboken; the East River, which separates us from Brooklyn, and an official conscience in the person of former commissioner of parks, Robert Moses. Without these three, we would have a shambles, a chaos unparallelled in history.

In thinking about our smaller cities, a city like Richmond, for instance, I recall the Democrats who have always been fond of saying that if a Republican were elected to office, grass would grow in Main Street. Of course, this is exactly what should happen. It's transparently wrong, when a man makes a purchase on one side of the street, that he should have to risk his life to get his wife a pair of earrings on the other side. Broad Street, for instance, would make a fabulous esplanade. It's something to think about.

Last summer, I had the good fortune to spend some time in Venice. I had a very embarrassing accident there, however. I fell and broke my arm getting in a gondola. That didn't keep me from appreciating it. It's a city of 300,000 people. Everyone, contrary to the romantic association there, is a pedestrian. As you recall, automobiles are parked in great garages as you enter the city and the Grand Canal serves as the rapid transit line. It may seem strange but this seems a marvelous prototype for a city of today.

I have the good fortune to be replanning Akron, Ohio, where we expect to close up fifteen blocks of the main street and convert it into a park, a place to sit, fountains and other amenities and create, in effect, a pedestrian oasis in the middle of the city. All vehicles will be rerouted around this oasis and parking for automobiles can be put over almost anything.

I'd like to put in a little commercial, if I may. I think or rather describe New York as a living room without furniture. It's got a pretty well-earned title - the asphalt jungle. I have a client, young Huntington Hartford, who has offered to give the city something lovely. All of you who have lived in European cities or visited them at one time or another have enjoyed, perhaps to the point of saturation some of those sidewalk cafes in Paris or Rome. And he has offered to give New York City a sidewalk cafe, there at the corner of Fifty-ninth Street, opposite the Plaza, so that people shopping or walking in the evening would have a place to sit down and enjoy a cold drink and look out over the lagoon there in the park, which would be lighted in the evening. I think it would be one of the most charming amenities in the whole of the city. If you notice the people in New York City, you will see the poor tourists in the summer lined up like swallows on a wire; they are seated around those ledges in Rockefeller Center, which is the only place that a person can sit down between Forty-second Street and Central Park. So this will provide a charming little place where you can sit out of doors.

But he's been plagued. He's giving the city a million and a half dollars and is having an awful time doing it, because of the bird watchers, and the Apalachian Society, and others. Consider this little infinitesimal part of the park; a park is to be used; it isn't just a habit there. It ought not to be hoarded like a miser's gold. Europeans have never hesitated to use their parks. I guess a classic example is the one in Copenhagen. It is filled with restaurants and other forms of entertainment. I think the tree lovers and the bird watchers have been a little overzealous.

Question: Mr. Stone, what do you think, in general, of the architecture to be seen in government buildings these days?

Well, I think that bureaucracy very often takes its toll, though this doesn't have to be so. For instance, the State Department, in building all of its embassies overseas, has had a very progressive idealistic program. They have set about to choose the best architectural talents available in this country to plan these buildings - whether they be in London, or what have you. They have conscientiously obtained the best talents.

I don't think this has been the case with municipal buildings and even national buildings. Political expediency very often has transcended in importance the real object to do a fine and beautiful building, or say a great monument if you will. Without wanting to sound smug in this matter, I don't believe that some government agencies have had the best architectural talent. I think that in order to come by a great building, there has to be a determination on the part of the client, whether it be an individual, a municipality or a city, to have a great building, a work of art and to be willing to get the best talent and to pay what should be paid for a great building, rather than to look at it from a materialistic point of view and think chiefly of what it will cost for mediocre talent to see it through.

Question: What do you think of the extensive use of glass in today's modern buildings?

Well, I'm not the glassiest architect around; neither am I interested in reviving successes of past civilizations. Personally, I decry what passes for modern architecture. Back in the early part of the century, a glass building was forecast by one of the current leaders of architectural thought in the world. This is come into being about forty years later. I hope things don't move so slowly in the editorial world.

It's my contention that a building, whether it be a home, an office building or a civic building, should represent some degree of cooperation with nature. In other words, it should be done in harmony with nature, not in defiance of the laws of our natural environment. For instance, we do have heat and cold and rays of the sun. These are very violent forces. Now to attempt to build a glass building - an all-glass building, whether it be in New York City or New Orleans or Los Angeles - in all of these places regardless of the climate, you are in effect defying nature.

Glass is a great conductor of heat and cold as you know, so you're squandering your client's money in order to rewarm an idea that was put in architectural circulation forty years ago. To heat and cool these buildings is an exorbitant expense. If you've had much experience with them or inhabited them, you will find that the glare of the sun is hopeless. So you'll find that you are building an enormous radiator and you're on the receiving end, whether it be heat or cold. These are very impractical buildings to build, granted a very lovely prismatic effect, but I prophesy they've done their time now.

Unfortunately, it's a building that's readily emulated. I've figured out that I could do a building in New York such as you see along Park Avenue - not the great buildings there, but the imitations of them - I could do one of those buildings without ever drawing a line. I could pick all the parts out of a catalog; I could have my engineer figure out the elevations and the framing of the building, and I wouldn't have to do a single solitary thing. It has become such a standardized pattern that anyone can do it without skill or imagination or talent.

As far as the use of traditional architecture goes, this was abandoned back in the early thirties or late twenties. No architect today, with a conscience, would duplicate a monument of the past, whether it be a Gothic building for a church, or a Greek temple for a bank.

Question: What do you think of architectural design in colleges and universities?

Theoretically, idealistically, a college campus is a place for some repose and meditation, so transparently every student shouldn't come to school with an automobile and leave it parked in front of the library, whether it be simulated Gothic or the latest work. So when you think of the general idea of a college campus today - the first thing to do is get the automobile out of it and to get all the parking around the periphery and then again you would have a traditional atmosphere so conducive to learning rather than dodging taxis. That's about the only over-all advice I would give.

I 'm having a busman's holiday now. I'd like to tell you about it. I'm working on a new college for Beirut, Lebanon. It's an international college and a part of an American university and I just saw the trustees last evening. This will be like one of the Near Eastern citadels on this hill and I had one idea which I thought was pretty interesting. That was, a classroom building need not be a rectangular building. So I ended up, grouped generally around an elliptical columnade in the manner of Jefferson's University of Virginia, with eighteen circular buildings. The classroom buildings are divided like pieces of pie around a central atrium or circular rotunda and all of the classrooms are pie-shaped like an auditorium really properly should be. It's been a lot of fun to work on.

Question: Could you comment generally on residential architecture, especially in the cities of the East, and what might be done to improve the liveability of our cities?

We must give up the idea that we are English country squires and plan our houses compactly. Our countryside is being used up by these millions of little boxes. We should be inspired by the Mediterranean countries which have as you know, compact villages, towns with houses built wall to wall and with privacy obtained by cloistered walled gardens, courtyards and atriums. And in planning compactly this way we will save the open countryside.

Very likely to be realized while we are still living, is the fact that this will all be one great city from Richmond to New York. It is a very frightening prospect, with no interruption between or reprieve for the open countryside.

Another current fad in these individual dwellings, which I decry, is the so-called ranch house. This rage for informality in American life, I believe is a lame excuse for laziness. It's obviously easier to feed the children hamburgers in the back yard in the manner of ranch hands from a chuck wagon than it is to have them sit at a table where they might conceivably acquire some dignity, manners and grace. This whole idea stems from California which Fred Allen said was a fine place if you were an orange.

Maybe I'm entitled to be a little wistful, but it seems to me we need desperately the phenomena of Presidents like Washington and Jefferson. Perhaps their roots were so deeply sunk in the British Empire that their conduct could be explained. They were well rounded individuals and their response to their environment made them special heroes to me. Washington, as you know, had the vision of the city of Washington and actually implemented the plan. He retained the services of a French planner to carry through his ideas and his dreams of the capital and there it is today a monument to his vision. Jefferson, too, as you know, aspired to find ways of enhancing his environment, and as a very excellent amateur architect, he planned the University of Virginia - still one of the ranking masterpieces in our country today. But I haven't seen any thread of great interest in any of our succeeding Presidents, with the one exception of Theodore Roosevelt, who was interested in everything but who in a large measure was responsible for the creation of our National Park system.

It seems to me that we need guardians of the physical destiny of our country. We should have a cabinet official who is charged with this responsibility. In a foreign country, he would be called a Minister of Culture. Here, that would be very suspect. I suggest that we should call him Secretary of Environment. He would have a lower echelon, with counterparts in State capitals and in each major city, who would be charged with the education of the people just as the Secretary of Agriculture has State and county agents who educate the farmers. This all seems very simple and easy to come by to me if our farmlands, our forests, our national wealth are to be protected.

Even more of our national wealth is represented in the great things we build. But I think anyone who looks around can see that this country has grown chaotically, without plan, without thought, and with only a quick box in mind. I'll defy anyone here to find more than a half a dozen decent pieces of architecture between here and New York City and hardly any which represents twentieth century. I think it's very alarming, this exhibit which Mr. Cheek has here in the hall, where you can see that we do have - or had - some great national monuments which are just on the verge of being destroyed or despoiled. Our national pride should not permit this to happen.

This morning I looked at the Herald and the Times. On the front page was a picture of Grand Central Terminal. I am sure that all of you remember that great magnificent room which has been considered by most of us the entrance to New York City - a very impressive and inspiring room, ranking among the great rooms of the world. Well, without any comment - this is why I would like to be an editorial writer - the owners calmly announced they were taking this room and making that room 15 feet high and putting above it three floors of bowling alleys. If you don't think the money changers are in the temple you're mistaken. Isn't that appalling?

We must get over this catch-penny outlook in our buildings. They're not temporary, expedient money makers; they're part of the permanent improvement of our whole country. And each building is a potential masterpiece of architecture. Just as in football, each play is planned for a touchdown, if everyone carries out his assignment, so is each building, no matter how modest a potential work of art, expected to succeed and to endure. I think it should be remembered in our time that all great periods of history were great only because of the art they produced. I for one am discouraged.

ARCHITECTURAL DESIGN AND PLANNING
University Extension of University of California
San Diego

FIRST LECTURE - BY HENRY KOHLER, AIA

The prerequisite for this course is two years experience in an architect's office.

For this course to be of benefit to you it will be necessary to adopt the techniques of training on the highest professional level.

This class is to be run as an architect's office. Theoretically, your instructor is your employer - an architect who expects the impossible of you! You will be working against time, on problems that will tax your abilities and talents - but always with the hope that because of your efforts and abilities increases in salary will be forthcoming, with, possibly, the chance of securing a partnership in the firm someday. You can also look forward to the day when you will open your own architectural office; and the experience gained here will be invaluable.

This goal cannot be achieved without a monumental amount of work. Not only during sessions here, but also every extra minute outside that you can devote to the class problems, will be of benefit to you.

There is no doubt that some of you come to this class with more experience than do others, however, your educational training is similar, and, based upon that premise, you will all be expected to turn in the highest quality of workmanship.

While I realize that some of you may accomplish this with much less effort than others, I also know that every one of you can produce above average results. In this class we will accept nothing less! The work of the best student in this class will be our plateau. You are all expected to attain this level. Some draftsmen enjoy lettering; they are able to do a 50 line specification in one hour - neat, beautifully crisp lettering; others may require 10 hours of back breaking work to accomplish the same results. In this class we go only by results. If you are the one who has to spend the 10 hours to do the job, that is your misfortune. With practice you will be able, someday, to do it in an hour. We expect perfection all the time.

Each drawing must be made on highest quality tracing paper. Line work must be uniform in thickness and density. There must not be one speck of dirt, no smudge or imperfection on the sheet. Any erasures that can be detected on a print will disqualify that drawing and it must be done over.

Students should appreciate the unusual experience they are enjoying here. They are being given the opportunity to do the 'perfect' job. No client bickerings; no budget to meet; no limit in scope; confined only by Building Code, their own imaginations, and the requirements of the best architectural practice.

1. Importance of Good Working Habits:
a. Attitude of employer to employee: - The Architect expects to get a dollar's value for each dollar he has to pay out in salary.
b. Importance of work attitude versus coffee, smoke and toilet breaks:- These two and a half hour sessions should be spent as an unbroken period (not such a hardship when one considers that architects are expected to work 8, 12, 36 hours, under stress, when taking Civil Service, Architectural Registration and Beaux-Arts Examinations, respectively.)

2. Program:- wide open - Redesign U. S. for decentralization of population, a better city plan for San Diego - any type of structure from a cathedral to a skyscraper, apartment house, motel or residence, to alterations or additions to existing structures. Critiques will be given on any work related to architecture.

An open discussion period will be held after each session.

3. Method of Presentation:
a. All work must be submitted in black on white prints from drawings or handlettering made on tracing paper with pencil. Linework and lettering must be of highest professional quality. No exceptions.
b. Each drawing must have a proper borderline, title block and time sheet indicating hours and minutes spent in preparation of each sheet including time spent on corrections.

4. Required Amount of Work: A minimum of five sheets of drawings or lettering must be submitted each week at the beginning of each lecture. Students absent from class are required to submit the required work load. Subject matter of sheets should follow the following outline (minor variations will be permitted only if permission is granted in advance):
a. General drawing sheet
b. Detail drawing sheet
c. Specification sheet
d. Bill of Material and Cost-Estimate sheet
e. Field Inspection Report.

Problem for the First Session: Each student will be issued a clean sheet of tracing paper in the right corner of which is printed a title block, as used by the instructor in his New York City Architectural office.

Using pencil, T-square, triangles and/or other drafting aids, the students will design a similar title block for himself on this sheet. Another box of sufficient size, for use as a time sheet, shall also be laid out; spaces shall be provided in which to record expected architectural fee, per hour rate and total costs.

If desired, graphic scales, orientations, coordinate lines, etc. can be incorporated in the layout of the sheet.

Your personal title block shall be used on all sheets submitted in this class.

List of Reference Books and Study Material:
California Uniform Building Code
San Diego Planning and Zoning Resolutions
(Both can be secured from the City of San Diego:
(524 G Street, 4343 University, 1349 Garnet)

82 Distinctive Houses from "Architectural Record"
(F. W. Dodge Cor., 119 W. 40 St., N.Y.C. 18)

Apartment Houses, by Abel & Severud
(Reinhold Publishing Corp. 430 Park Ave., N.Y.C.)

Motels, Hotels, Restaurants & Bars
(F. W. Dodge Corp., 119 West 40th St., N.Y.C. 18)

Architectural Graphic Standards, by Ramsey & Sleeper
(John Wiley & Son, New York)

Building, Planning and Design Standards, by
Harold R. Sleeper (John Wiley & Son, New York)

How to Estimate for the Building Trades, by
Townsend, Dalzell, McKinney (American Technical Society, N.Y.C.)

California Home Estimator
(Craftsman Book Co., 11975 San Vincent Blvd. L.A. 49)

Kidder's Architects' and Builders' Handbook
(John Wiley & Son, New York)

Steel Construction Manual
(Concrete Reinforcing Steel Institute; New York City)

Architectural Practice, by Cowgill & Small
(Reinhold Publishing Corp. 430 Park Ave., N.Y.C.)

First Design Problem - using architect-client relationships.

Students will work in teams of two: one will assume the identity of the designer, the other that of the client (each student shall be required to assume both roles, but not with the same partner).

Client's responsibility will be to offer a site, location to be selected from a map. He shall demand any type of building, complete with every detail and specification he desires, at what he considers a proper price.

Designer's responsibility is to attempt to satisfy his clinet's requirements wherever possible, and/or justify his changes. He must keep a complete record of all negotiations and correspondence with his client (contracts, change orders, payment drafts, etc.)

No verbal agreements.

Above work may be substituted for one required sheet of specifications and one field inspection report.

All documents must be hand lettered on tracing paper and submitted to the instructor in black and white prints for critique.

"THAT SOMETHING"

BY JOSEPH J. CAPONNETTO

It is phenomenal that in no era of civilization has there been such a rapid development of reliable factual knowledge and such success in the application of scientific methods as in the past two decades.

However, the effectiveness of this positive force has been weakened by the lack of a parallel component which is the true appraisal of accomplishment. This absence of clear and accurate evaluation has not only negated some of the most important scientific advances, but has motivated new socio-psychological problems deeply affecting human behavior in our social, economic and political structure. In the race for factual knowledge, we have disregarded comparative values, leaving direction and orientation to emotional wishful thinking and the pseudo-intellectual practitioners of empiricism and pragmatism. Man is charged with the task of discovering the genuine values of life for the guidance and welfare of society, an effort whose fulfillment is the noblest gesture of love and devotion to mankind. The unselfish motive for all evaluation of achievement must be based on ideals common to all men, and be guided objectively by an ultimate criteria, because judgment must select the superior values of goodness, beauty and truth for the fulfillment of a better life. Similarly, the achievement of the real and scientific must be accompanied by comparable advances in evaluation, thus establishing a certain harmony between discovery and relative value.

Today as yesterday, and certainly tomorrow, the criteria for value will be challenged. What principles will be applied as the basis of appraisal? Shall it be assumed that the yardstick of value will be gauged by personal preferences and whims? Will economic and political pressures impose false standards of value upon society under pretext of immediate expediency, only to augment misunderstanding with more confusion? As the present and the past shape the guideposts that determine the moral path to the future, it seems logical that our most important task is to discover value and give direction to the development of the present. Fortunately, signs of emotional breakdown of growing tension and psychological distress on the social scene, are slowly cracking the smug wall of complacency that we have built around us since the last war.

When the break-through for the greatest victories of the scientific method came: the compression of distance and the extension of time; the problem had to be resolved in terms of how the new principles could be utilized and coordinated in life, so that it would enrich the whole process of living. It is readily conceivable that such principles unwisely applied could have a counter-effect, and it is this lack of proper integration of scientific progress in our living that has introduced many inconsistencies and contradictions: great variety and no choice, starvation in a land of plenty, and loneliness in the company of a million. The great contradiction of War with the hope for a permanent peace, the threat of extinction and the will to survive, put tremendous pressure on science; whereas, uncertainty, fear, and hope were making impressive mental and physical demands on all peoples. Following the war, there was turned over to peace the vast array of progress and comforts including the psychosis and insecurity with all the fears and evils that could be mustered out to ravage the welfare of man. What little role aesthetic intelligence, intuitive guidance, physical science and art have supplied has been chiefly misinterpreted, so that this lack of balance between principles has defrauded mankind of the ease and stability that he rightfully inherits. All the material accomplishments dominate our lives, yet they hardly relate the true importance of the concept to man's role in life. We strive for the means and forget the ends!

That the material and the real do not satisfy all human requirements is a foregone conclusion. What is more important is, that because of this incompleteness, this subjective deficiency, there is a chain reaction of distress ranging from the psychological to the neurotic. As man seeks to be released from this enslavement, he seeks comfort and understanding. Therefore he must turn to the imagination in order to transform reality into a motive for creativeness, that is the will to recreate and relive those experiences which bring the greatest felicity and satisfaction, since in actual materialistic surroundings man experiences loneliness and ultimately - decay. Many a giant who has conquered his world, lives in hope of reconciling his surroundings with his dreams. Just as knowledge, reason, and intelligence discover the new and expanding horizons, so man of flesh, under the cruel lash of experience, reaches out to grasp those elusive ideals. He craves to escape the shackels of realism that encumber real experiences, by freeing his inhibitions through the emotional ecstasy - the aesthetic expression.

The art experience is not mere sensuous pleasure, (although this puritanical point of view is still common) it is a valuable imaginative expression. It is that which Keats noted: "That power of imaginative activity through which the soul could know things that the reason could never understand." Up from the past and including contemporary thought, it is believed that art is a moral influence for good or evil, depending on the degree of refinement in its organization, and it was this idea that was championed by Plato who gave it its maximum expression, contending that art had a profound effect upon the character of men.

Through aesthetic experience , the motivated creativeness strives to approach the ultimate in perfection and unity; and brought to the level of commonplace application, it can fill the vast void of unimaginative practical gadgetry. Our design for living can achieve greater meaning through the appreciation of the best aesthetic efforts and works of art which would determine contemporary taste.

It is on the basis of the foregoing that we can focus the value principle and the aesthetic experience on one of the arts: Architecture, "the science and art of designing and constructing buildings and other structures." The crux is encountered immediately in the antithesis - "science and art". Here,science is a knowledge of facts with its laws and approximate causes "gained and verified by exact observation and correct thinking, also the sum of universal knowledge". Contemporary science facts, skills, efficiency, technology and mechanical know-how are available for a structure of any size, shape, or form, ready to apply the appropriate forces and technique that are required to govern the stability and balance, structurally and mechanically.

The application of the aesthetic element is forever present, whether or not one is aware of its existence. It manifests itself objectively as the concept which is realized through form. In works of art, therefore, certain formal requirements should be met, such as unity, order, proportion, balance, symmetry, pattern and rhythm. H. B. Langfield writes of unity: "There are three separate expressions of unity in most art objects: a unity of form, a unity of content, and a unity between form and content." The Aristotelian concept of the real has two aspects: Form and matter; matter being that which receives its last determination through form; form embodying the aforementioned formal requirements. Although the aesthetic idea of pure form is often thought of as a contemporary discovery, it was Plato who first conceived the thing itself as ultimate reality.

Because of the plastic characteristic of mass as a condition of art form, which is synonymous with shape, becomes the determining factor, and intuition is expressed through the slightest determination of shape (or form), Form, then, is the arrangement and order of the different parts of the whole, where mass becomes the content which cannot have meaning without form, any more than form can have meaning without content. The premise that mass (or substance) is plastic, presupposes a variety of materials and parts available for particular use and condition, allowing for a flexibility in choice which is a requirement of mass production technique. Moreover, it must be available to building so that mass production may survive in the present economic competitive structure.

Viewing evolution as progress and change, we encounter some interesting observations when we clearly establish it as a pattern and relate it to living and habit. The impact of reforms in the last two score years has been more noticeable due to the lack of continuity and regularity in this evolution, which involves a change of principle or concept rather than the normal and continuous development of conventional ideas. Duality and marked asymmetry (disequilibrium) are characteristic of this relationship which can be considered a defined image sensitively predicated on the degree of compatibility between the new and the old. The inconsistency of this phenomena becomes obvious; side by side, the superior tolerates the absurd. We build multi-lane expressways to accommodate a swelling participation (of vehicles) only to empty their traffic on some narrow secondary street already plagued with local circulation problems. The recent crippling effects of a hard winter on New York, which, in spite of the mammouth display of facilities, brought all activities to a standstill. Close observation of cause and effect clearly reveals the contradiction.

Rapid, heterogenous growth and development of man's environment limits his capacity to absorb change. It would seem logical that contemplated changes should be introduced at well defined levels and in an orderly sequence to avoid conflict, but they rarely are. On the other hand, a complacent state of inertia has been defended by some very conservative elements in our society. The important question remains: To what extent is the human being capable of adapting himself physically and psychologically to such changes? Has evolution provided him with sufficient flexibility to conform to these rapid adjustments without rupture to his normal activity? The answers to these questions will form the basis for subsequent study and tests.

Lack of synchronism and uniformity in growth offer a confused program to architecture which is committed to serve civilization fully and in consonance with the contemporary concept of living. However, to fulfill his role, the planner must be able to interpret and select with the aid of his prognostic powers - intuition, from the wealth of information at his disposal, that which can endure and co-exist with the future. He must discard the purely temporary and passing. If the architect cannot accomplish this, his role will be definitely threatened and architecture will be in serious trouble.

Our cities and the contemporary architectural scene offer a remarkable variety of design. A casual glance at any trade journal would convince anyone that there is as much architecture as there are architects, and that each individual treats his problems in a very unique way. The problems posed for a building with similar requirements can be solved in many different ways. There are the skin facade, the glass facade of high rise buildings, and the more classic solutions. We have rescued oriental motifs and hidden a building behind this romantic pattern. Some design is predicated on a reduction of scale and a jewel-like rhythm. Other forms glorify the inverted ship's hull and still others torture wood laminations into plastic shapes. There is really no lack of the geometric concrete plastic forms. The great choice of materials has aided the architect in the fulfillment of his ideas, especially with the introduction of plastics and adhesives, the perfection of glass and metal techniques etc., for architectural consumption. The element of doubt in the execution of any design has been removed. Adding to this the achievements of the structural and mechanical engineers and the modern techniques of construction available to the builder, it can be safely assumed that the day of scientific building has arrived.

Despite these scientific and artistic accomplishments, many believe that the architecture of today is entirely too experimental - the flow of design and ideas needs more time to materialize. The lack of systematic cohesion and inspired relationship of ideas and an utter neglect of selectivity, restraint and limitation, show a decided weakness in concept. However, the few works of contemporary masters (not their imitators) reveal a great promise of lasting aesthetic performance. Much of the design with its diversity of form and material, offers interesting contrasts which divert and complement each other. With all the activity of this great quest, the effort anticipates a "something", the latent ingredient that like a dormant note awaits the magic fingers to wrest it from the chord. The total architectural effort as a pattern of natural sequence for the crystallization of ideas suggests a sincere attempt to achieve this "something".

The wail and moan of the prognosticators who brave a preview at their crystal ball, utter the distressing cry of "chaotic", not realizing that all this may be the forebearer of the "cosmic" in architecture and the threshold of the second stage through which we can emerge to gain the conclusive stage.

Scientific thesis has long accepted and the arts have proposed the antithesis. The scientific revolution solved the problems of extreme realism setting up an objective pattern for living. The material gain was gratefully acknowledged, but the big void that was created in its wake was challenged. The arts recognizing the positive living force of subjectivism, propose to salvage the spirit of man. These are the working forces and ideals which in the course of development and enlightment will have to find a common level of fusion. Similarly, architectural development reflecting the problems of our era, are also in a state of fluctuation between two extremes. Having gained so much in so short a time, is it vain to hope for a joint effort culminating in the "architectural systhesis?"

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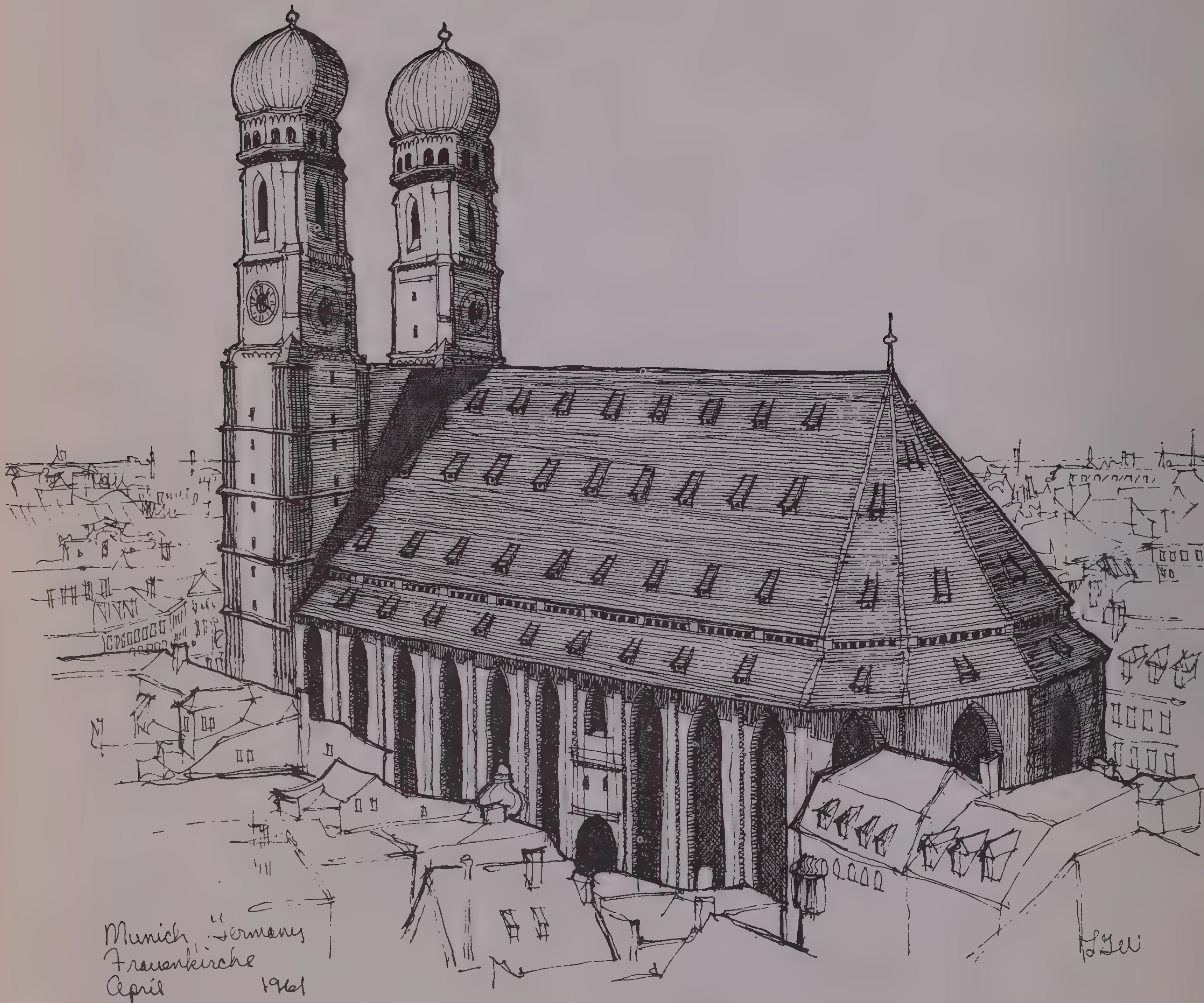
FOR 1961-1962 COMPETITIONS!



"FRAUENKIRCHE" MUNICH, GERMANY - BY LLOYD GUY WALTER, Jr.
1960 Lloyd Warren Fellowship - 47th Paris Prize in Architecture

THE BULLETIN of the NATIONAL INSTITUTE FOR ARCHITECTURAL EDUCATION
VOLUME XXXVII SCHOOL YEAR 1960-1961

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